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VICKERS-ARMSTRONGS LIMITED



HANDBOOK OF THE VICKERS 12.7 mm. (0.5-INCH) AUTOMATIC GUN

Class D*

HANDBOOK
OF THE
VICKERS 12.7 mm. (0.5-INCH)
AUTOMATIC GUN
Class D*



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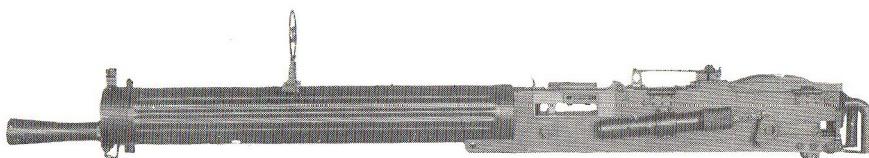
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**VICKERS 12.7 mm. (0.5-inch)
AUTOMATIC GUN
CLASS D***



View of right hand side of the Gun.



View of left hand side of the Gun.



Plan View of the Gun.

VICKERS 12.7 mm. (0.5-INCH)

AUTOMATIC GUN

Class D*

THE design of the Vickers 12.7 mm. (0.5-inch) Automatic Gun is based upon the principles of the well known Vickers Rifle Calibre Machine Gun. The Gun is intended to meet the demand for a high velocity automatic weapon suitable for use against Tanks, Armoured Cars and Aircraft.

This Handbook provides complete instructions for the operation, care, and maintenance of the Gun.

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NOTE.—In Plates showing Details, the numbered parts are arranged in the order of their Assembly, reading from left to right and downwards.

VICKERS 12.7 mm. (0.5-INCH) AUTOMATIC GUN Class D*

GENERAL DESCRIPTION

The Vickers 12.7 mm. (0.5 inch) Automatic Gun consists of three main parts :—

- (1) Non-Recoiling Parts.
- (2) The Feed Mechanism (which may be classified with the Non-Recoiling Parts).
- (3) Recoiling parts.

It is operated automatically by two forces :—

- (a) The explosion of the charge, which forces the recoiling parts backward.
- (b) A system of Springs known as .—
 - (1a) The Barrel-Return Spring.
 - (2b) The Fuzee Spring.

These Springs carry the recoiling parts forward.

THE NON-RECOILING PARTS.

The Non-Recoiling Parts consist of the Breech Casing with those parts attached thereto, the Water Jacket and the Feed Mechanism.

Breech Casing. (*See Plate 20, Page 56*).

This consists of two outside Side Plates (48 and 55) connected by a Trunnion Block (136) and Water Jacket (138) at the front end, and by the Handle Block (77), Resistance Block Bracket (69) and Resistance Block (70) at the rear end, held rigidly at the top by the Rear and Front Covers (91 and 115).

Trunnion Block. (*See Plate 20, Page 56*).

The Trunnion Block (136) forms a bearing for the breech end of the Barrel (1).

Trunnions.

The trunnions are solid with the Trunnion Block (136) and pass through the Side Plates under the Feed Block (122).

Side Plates.

The Side Plates are fitted with side Cams (49 and 56) on their insides, on which the Extractor (18) travels when extracting a live Cartridge from the Feed Block (122).

Extractor Safety Catch.

The Extractor Safety Catch (57) is fitted to the Cam (56) on the inside of the Side Plates and prevents the Extractor (18), which carries the live Round, from running back into the Cartridge in the Feed Block (122).

Dead Stop.

The Dead Stop (51) is attached to a Bracket (50) on the outside of the right hand Side Plate (48) and is held thereon by a Washer and Split Pin. It is provided with a Spring Plunger for retaining the Crank Handle.

Spring-Case Bracket.

A Bracket (62), to which the Fuzee Spring (64) is attached, is rivetted to the left hand Side Plate (55) at the rear of the cut-out for the Feed Block (122).

Handle Block.

The Handle Block (77) is attached to the Side Plates (48 and 55) at the rear of the Gun, being secured thereto by two Pins (78 and 81). The upper Pin (81) has a "T" shaped head to facilitate removal. When this Pin (81) is removed, the Handle Block is free to swing downwards

on the axis of the lower Pin (78). The Handle Block (77) contains the Trigger Mechanism with Safety Catch (86) and is fitted with two Handles of a shape convenient for holding the gun in any position.

Front Cover. (*See Plate 13, Page 49*).

The Front Cover (115) is attached to the Side Plates (48 and 55) by a Hinge Pin (117). It is arranged to open lengthwise, and holds the Feed Block (122) in position. A Catch (119) which is situated on top of the Cover at the front end, is provided to secure the Cover when closed.

Rear Cover. (*See Plate 12, Page 48*).

The Rear Cover (91) opens sideways, being hinged on the left hand Side Plate (55). The rear-cover Catch (96), which is situated on the top of the Rear Cover on the right side, is operated by pressing it inwards against a Spring, thus disengaging it from a corresponding hole on the right hand Side Plate (48). A Bracket is attached to the Cover to which is fitted the Tangent Sight. The Levers connecting the Trigger Gear on the Handle Block with the Lock Mechanism are situated on the under side of the Cover.

Water Jacket. (*See Plate 20, Page 56*).

The Water Jacket (138) is constructed of steel, and holds approximately 2 gallons of water to keep the Barrel (1) cool when firing. It has three openings, one on the upper-rear end, one underneath near the muzzle for drawing off the water and the third, also near the muzzle, for allowing the steam to escape.

Asbestos Packing.

To prevent the escape of water from the Water Jacket (138) around the Barrel Bearings, asbestos is packed into a Cannelure at the rear end of the Barrel (1) and into a Stuffing Box (144) at the front end and retained there by a Packing Gland (146).

Cork Plug.

A Cork Plug (151) is provided, which can be inserted in the steam escape hole, to prevent waste of water when the Gun is being transported.

Steam Tubes. (*See Plate 20, Page 56*).

A Steam Tube (139) is fixed in the Water Jacket (138) above the Barrel. It has two holes cut in it near each end and is secured in its proper position by means of the Rear Piece (141) and the Front Piece (142). Over this Inner Tube (139) is placed an Outer Tube (140), called the Slide Valve, which is arranged to slide freely backwards and forwards on the Inner Tube (139).

Slide Valve. (*See Plate 20, Page 56*).

If the Gun is fired at Elevation, this Valve slides backwards, closes the hole at the rear end of the Tube (139) and thus prevents the entrance of water; at the same time it leaves the front hole uncovered. As this hole is above the water-level it allows the steam to enter the fixed tube and so escape through the steam outlet tube in the end cap of the Water Jacket.

Similarly if the Gun is fired at Depression the Valve slides forward, uncovers the rear hole and allows the steam to escape.

THE FEED MECHANISM.

The Feed Mechanism is contained in the Feed Block.

Feed Block. (*See Plate 15, Page 51*).

Normally, the Cartridges are fed to the Gun through the Feed Block (122) from its right hand side, but if it is desired to use Guns in pairs, or in a confined space, in which the Gun cannot be conveniently fed from the right hand side, the feed may be from the left hand side by using a left hand Feed Block.

The Feed Block (122) is of gunmetal and fits into a recess in the Side Plates of the Breech Casing. It is provided with a Slide (126) to which is attached an Actuating Pawl (130) with Spring (131) for the purpose of moving the Cartridges from right to left. The Slide (126) has a transverse motion given to it by means of a Lever with two Arms, the Top Arm (127) having a Stud which engages in an opening in the Slide (126) and the Lower Arm (128) a Stud which engages in a recess in the Barrel and Recoil Plate. The Slide is by this means connected to the Recoiling Parts.

The Feed Block (122) is also provided with two Retaining Pawls (132) connected by a Finger Piece. The Pawls, which are held in position by two Springs (133 and 134), engage behind each succeeding Cartridge, thus preventing the Belt slipping backwards during Firing.

Cartridge Guides (123 and 124) are fitted above and below in the Cartridge Way as well as a Spring (125) at the front end, to ensure the Cartridges being properly gripped by the Extractor (18). The Cartridges are prevented from being pushed too far through to the left by means of the Cartridge and Bullet Guides (123 and 124), which also act as Stops, inside the Feed Block (122).

Ammunition Belt.

The Gun is fed with cartridges either from a Canvas Belt containing 100 rounds, or from a Belt consisting of articulated metallic links, which pass through the Feed Block (122).

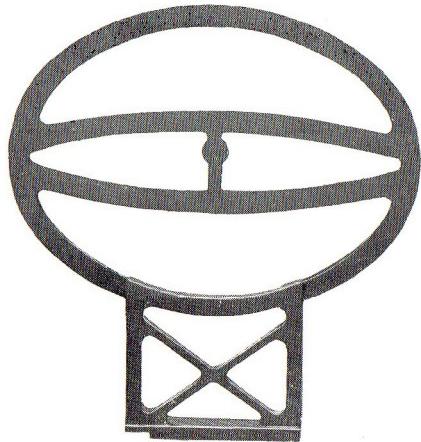
Tangent Sight. (*See Plate 14, Page 50*).

The Tangent Sight consists of the following parts :—

The Stem (107), Sight Carriage (108), Pawls (110), Springs (111), Plunger (112), Spring (113), Securing Pin (114) and Securing Screw (109).

The Stem (107) is secured to the Rear Cover (91) by means of the Securing Pin (114). The Plunger (112) and Spring (113) are provided to hold the Stem (107) erect while Firing, or, when not in use, lying down on the Support (No. 91A). The Stem is graduated from 0 to 3,000 yards (or metres), each 500 yards (or metres) being marked on the line, the unnumbered intervening graduations indicating extra 100 yards (or metres).

The Sight Carriage (108), which is adjustable for the various Ranges, has a large aperture (153) on the left-hand side for use with the Anti-Aircraft Sight with a small "U" opening at the bottom, for use in conjunction with the Open Sight. It is fitted with Springs (111) and Pawls (110) to hold it in the required position on the Stem (107).



155 FORWARD-AREA SIGHT.



158 SPRING.



159 SCREW.



TANGENT
SIGHT.

Plate 1. **Forward-Area Sight and Tangent Sight.**

Fore Sight.

The Fore Sight (148) is dovetailed into the Foresight Bracket (147) which is riveted to the End Cap (front) (80) in line with the "U" opening on the Tangent-Sight Carriage (108).

How to Set the Sights.

On the Sight Carriage (108) are two Pawls (110) right and left hand, which when pressed allow the Sight Carriage (108) to be moved up and down the Stem (107). When the pressure on the Pawls (110) is released small studs on either side of the Pawls (110) are forced to engage in one of the several notches on either side of the Stem by means of two small Springs (107), thus securing the Sight Carriage at any desired Graduation.

The Red Line, marked on the Stem, indicates the position of the Sight Carriage for use with the Anti-Aircraft Sights. This Red Line is effective for short, medium or long Ranges in Anti-Aircraft Firing.

Anti-Aircraft Sight (*For description see Pages 8 to 11*).

The Anti-Aircraft Front Sight consists of a Bracket (156), a Spring (158), a Securing Screw (159) and the Forward-Area Sight (155).

The Bracket (156) has a dovetail groove cut in it to receive the dovetail foot of the Forward-Area Sight (155), and a keyway cut to take the Spring (158), a hole being drilled and tapped for the Securing Screw (159) fixing the Spring (158) to the Bracket (156). It is permanently riveted to the top of the Water Jacket (138).

The Spring (158) is a flat spring of the cantilever type, one end being fixed in the Bracket (156) by the Screw (159) and the other end provided with a thumb press.

The Forward-Area Sight (155) is a concentric double oval frame mounted on a dovetail foot which fits into the dovetail groove in the Bracket (156) and is held in the correct position by the Spring (158). It is easily assembled by forcing it into position against the Spring (158) and easily dismantled by pressing down the Spring (158) and then withdrawing it.

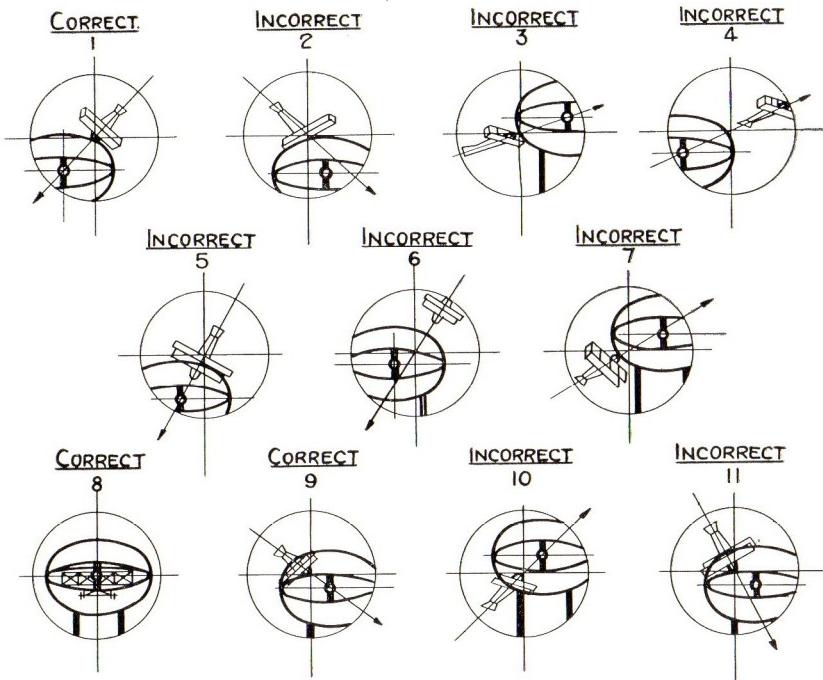
THE “FORWARD AREA” ANTI-AIRCRAFT SIGHT.

The Sight is a simple device which makes it possible to deliver effective Anti-Aircraft Machine Gun Fire with very little previous instruction. It is of the fixed type, designed to make correction for the displacement of the fast moving aircraft Target at the estimated normal height, speed, and angle at which Aircraft operate when within range of Machine Guns.

The Sight consists of rear-peep Sight (153), forming part of the Sight Carriage (108), and a concentric double oval front Sight mounted on a suitable support, clamped round the water jacket of the Machine Gun and readily detachable therefrom.

The Operator sights through the rear-peep-Hole (153) across the Rim of the Front Oval at the target and shifts the line of the Gun towards the target so that the Aircraft will constantly appear to be flying directly towards the centre of the Fore Sight.

The altitude of the Aircraft is given by the Observer and the Gunner then chooses the Oval which most closely approximates to the range. He opens fire when the nose of the Target just touches the outer edge of the Oval chosen and continues to fire in as long bursts as practicable while changing the line of the Gun to maintain always the same relative position of the Target and the Fore Sight, i.e., so that the Aircraft is always flying towards the centre of the Sight with its nose just touching the rim of the Oval selected.



*Showing Correct and Incorrect Aiming
with the*

“FORWARD AREA” ANTI-AIRCRAFT SIGHT.

The Outer Circle represents the Rear Sight aperture on the Stem of the Tangent Sight, through which is seen the Fore Sight and Target.

FIG. 1. Outer Ring in use (altitude 1,000 m. to 3,000 m.).

Correct. The Aeroplane is flying towards the ring Centre, the nose of the Aeroplane is touching the Outer Edge of the Ring selected, and the point where the nose of the Aeroplane touches the Outer Edge is centred in the Back-Sight Aperture.

FIG. 2. Outer Ring in use (altitude 1,000 m. to 3,000 m.).

Incorrect. The Aeroplane, while touching the Outer Edge of the Ring selected, is *not* flying toward the Ring Centre. The Bullets would pass *below* the Target.

FIG. 3. Outer Ring in use (altitude 1,000 m. to 3,000 m.).

Incorrect. The nose of the Aeroplane is *not* touching the Outer Edge of the Ring, although it is flying toward the Ring Centre. If fire were opened on this sighting the Bullets would pass in *front* of the Target.

FIG. 4. Outer Ring in use (altitude 1,000 m. to 3,000 m.).

Incorrect. The Aeroplane is flying away from, instead of towards, the Ring Centre. The bullets would pass a long way *behind* the Target.

FIG. 5. Outer Ring in use (altitude 1,000 m. to 3,000 m.).

Incorrect The nose of the Aeroplane is *not* touching the Outer Edge of the Ring selected, but has passed inside that Ring, too close to the Ring Centre. On this sighting fire would be opened too late and the bullets would pass *behind* any vital part of the Aeroplane.

FIG. 6. Either Outer or Inner Ring in use.

Incorrect. The Aeroplane is not flying toward the Ring Centre, the nose is not touching the Outer Edge of Ring selected, and the point where the nose of the Aeroplane would touch either Ring is *not* centred in the Back Sight. The bullets would pass in *front* and to the *left* of the Aeroplane.

FIG. 7 Outer Ring in use (altitude 1,000 m. to 3,000 m.).

Incorrect. The point where the nose of the Aeroplane touches the Outer Edge of the Ring selected is not centred in the Back Sight Aperture. Even though the Aeroplane is flying toward the Ring Centre and touching the Ring Edge properly, the point of nose contact is off the centre and the bullets would consequently pass in *front* of the Aeroplane.

FIG 8. Centre Aperture in use.

Correct. The Aeroplane is diving toward the Gun. Aim is taken by aligning the Ring Centre Aperture, centred in the Back Sight Aperture, upon the middle of the upper part of the plane. The Bullets would then *hit* the vital parts of the Aeroplane.

FIG. 9. Inner Ring in use (up to 200 m.).

Correct. The Aeroplane is flying toward the Centre of the Ring, the nose of the Aeroplane is touching the Outer Edge of the Ring selected, and the point of contact between the nose of the Aeroplane and the Outer Edge of the Ring selected is centred in the Back Sight Aperture.

FIG. 10. Inner Ring in use (up to 200 m.).

Incorrect. The nose of the Aeroplane is not touching the Outer Edge of the Ring selected. The bullets would pass in *front* of the Target.

FIG. 11. Inner Ring in use (up to 200 m.).

Incorrect. The Aeroplane is not flying toward the Ring Centre. The Bullets would pass to the *right* of the Aeroplane.

THE RECOILING PARTS.

The Recoiling Parts, which are carried inside the Non-Recoiling Parts, consist of :—

- Barrel (1),
- Recoil Plates (33 and 34),
- Crank (35),
- Connecting Rod (36),
- Lock (3 to 32),
- Barrel-Return Spring (44),

the Crank Handle (42) and the Fuzee Spring (64), which are carried outside the Non-Recoiling Parts.

Barrel. (*See Plate 16, Page 52*).

The Barrel (1) is formed with a Square Block at the Breech end and is provided with two Trunnions, solid with the Barrel (one at either side). By means of these Trunnions the Barrel (1) is connected to the Recoil Plates (33 and 34). The Barrel (1) has two recesses into which a stud on the bottom of the Feed Block (122) engages.

Recoil Plates. (*See Plate 16, Page 52*).

The Recoil Plates (33 and 34) are attached to the Barrel (1) at their Forward ends and at their Rear ends form a Bearing for the Crank (35) which fits in slots cut in the side Plates (48 and 55). Flanges are provided on their inner bottom edges, on which grooves in the Lock Frame (3) slide. At the Forward ends of these Plates (33 and 34) recesses are cut into which the Bottom Lever of the Feed Block (122) engages. These recesses are cut in both sides of the Barrel and both Recoil Plates. The recesses in the right hand side are in use when using a right hand Feed Block and those on the left hand side are in use when using a left hand Feed Block.

Crank. (*See Plate 16, Page 52*).

The Crank (35) is fitted between the rear of the Recoil Plates (33 and 34). On the right hand side, the Crank Spindle projects through the right hand Side Plate (48) and carries the Crank Handle (42) which

in its normal position, rests on the Dead Stop (51). On the left hand side, the Crank Spindle projects through the left hand Side Plate (55) and carries the Fuzee (4) to which are attached the Links forming the connection between the crank and the Fuzee Spring.

Beneath the Crank Axis is a projecting Cam which, when the Gun is working, engages with a sloped surface on the Crank Resistance Block (70) thus throwing the Crank (35) sharply over.

The remainder of the Crank Axis is inside the Breech Casing.

Crank Handle. (*See Plate 16, Page 52*).

The Crank Handle (42) is of lever shape, having a projection for engaging with the Dead Stop and a Handle for Hand Operation.

Connecting Rod. (*See Plate 16, Page 52*).

The Connecting Rod (36) connects the Crank (35) to the Lock. One end revolves on the Crank Pin (37) the other end has interrupted Lugs for fitting into the Lock Side-Levers (30).

Lock. (*See Plate 17, Page 53*).

The Lock is attached to the Connecting Rod (36) by a Bayonet Joint and, when in the firing position, closes the Breech. In this position it is held by the Side Levers (30), the Connecting Rod (36) and the Crank (35). The Lock has a reciprocating motion communicated to it by the rotation of the Crank (35) and is kept in position during its backward and forward movements by means of flanges working on guides on the Recoil Plates (33 and 34) and by grooves underneath the Rear Cover (91).

The Lock consists of the following parts, arranged in the order of Assembly :—

- Lock Frame (3)
- Safety Sear (5)
- Safety Sear Spring (6)
- ,, Axis Pin (4)
- Striker (7)

Main Spring (8)
 Securing Plate (9)
 Tumbler (10)
 Axis Pin (11) for Lifting Levers and Tumbler.
 Trigger Sear (12)
 ,, ,, Spring (13)
 Plate (14) retaining Trigger Sear Spring
 Lever (15) for Trigger Sear
 Roller (16) for Trigger Sear Lever
 Axis Pin (17) for Trigger Sear Roller
 Axis Pin (17a) for Trigger Sear Lever
 Extractor (18)
 Upper Gib (19)
 Spring (20) for Upper Gib
 Gib Cover (21)
 Firing Pin Point (22)
 Spring (23) for Firing Pin Point
 Lower Gib (24)
 Spring for Lower Gib (25)
 Disc (26) Retaining Lower Gib Plate
 Plate (27) for Lower Gib
 Lifting Lever R.H. (28)
 ,, ,, L.H. (29)
 Side Lever (30)
 Axis Pin (31) for Side Lever
 Spring Pin (32) Securing Axis Pin for Side Lever

ASSEMBLED

Extractor. (*See Plate 17, Page 53*).

The Extractor (18) is attached to the fore end of the Lock by guide ribs upon which it slides and is fitted with Gibs (19 and 24), Gib Springs (20 and 25), Firing Pin Point (22) and Spring (23). The Projections on the Gib together with the Grooves in the Extractor, form recesses which retain the Cartridge in position.

To retain the Extractor in its top position during Recoil, it is provided with Two Horns which slide on the Cams (56) inside the Breech Casing.

Side Levers and Lifting Levers. (See Plate 17, Page 53).

The Extractor (18) is moved upwards by means of Side Levers (30) and Lifting Levers (29) and when in its highest position is retained there by the locking action of both Side Levers and Lifting Levers, which ensures the hole for the Striker (7) being opposite Firing Pin Point (22) when the Lock is home. The Extractor (18) contains the Firing Pin Point (22), the rear of which is exposed so that the Striker (7) may force it forward into the Cap of the Cartridge when the gun is fired. Normally the Firing Pin Point (22) is held back by a Spring (23).

The upward and downward movements of the Extractor (18) are guided by Ribs and limited by Stops. The upper and lower Stops form part of the Lock Frame. The Lower Stop limits the drop of the Extractor (18) by limiting the travel of the Lifting Levers (29).

Barrel Return Spring. (See Plate 16, Page 52).

The Barrel Return Spring (44) is situated behind the Crank (35) and is held in position by a Bracket (45) which slides in grooves in the Side Plates (48 and 55) behind the Recoil Plates (33 and 34).

Fuzee Spring (or Lock-Return Spring). (See Plate 16, Page 52).

The Fuzee Spring (64) is enclosed in a Case (63) the end of which is attached to a Bracket (62) on the left hand Side Plate (55). When the Gun recoils, this Spring is compressed by the Spring Rod (65) which is connected to the Fuzee (41) on the Crank Spindle by a Chain (67). Provision is made to vary the initial pressure of the spring by turning an Adjusting Nut (66) which is screwed on the rear end of the Spring Case (63).

12.7 mm. (0.5-INCH) AUTOMATIC GUN.

DESCRIPTION OF THE ACTION OF THE MECHANISM.

(See Plate 21, Page 57, and Plate 22, Page 58)

To Prepare for Firing.

The Gun is prepared for Firing as follows :—

- (1) Turn the Crank Handle (42) to the Rear.
- (2) Pull the Ammunition Belt with Cartridges into the Feed Block as far as it will go.
- (3) Release the Crank Handle (42).

This places a live Cartridge in position in the face of the Extractor, at the top.

- (4) Turn the Crank Handle (42) once more to the Rear. This extracts the first live Cartridge from the Feed Block.
- (5) While the Lock is at the rear pull the Belt again. This brings the second live round into position in the Feed Block.
- (6) Release the Crank Handle (42) again.

This places the first live Cartridge into the Gun Chamber below, and as the Extractor (18) moves upward it grips the second live Cartridge in the Feed Block.

There are now two live Cartridges in the face of the Extractor. During this process the Lock has been cocked and the Gun is ready for firing.

Each time the Crank Handle is released it returns to the Dead Stop, under the action of the Springs, engages with a recess in the Stop and is locked against rebound by a small spring Plunger.

Firing the First Shot.

It is assumed that the Lock and Barrel are fully home in the Firing Position, when in this position the Safety Sear (5) is released and the bottom of the Trigger Sear (12) is engaged with the Bent of the Striker (7).

On raising the Safety Catch (86) and pressing the Trigger (82), the Trigger Lever (84), which engages with the rear end of the Rear Trigger Bar (99), pushes the latter forward. The Rear Trigger Bar, is connected to the Front Trigger Bar (98) by means of a double-ended Lever (100) so that the forward movement of the Rear Trigger Bar (99) gives a rearward movement to the Front Trigger Bar (98). This brings the inclined step on the forward end of the Front Trigger Bar against the Roller (16) on the Trigger-Sear Lever (15), the other end of which engages with the Trigger-Sear (12). As the rearward movement of the Front Trigger Bar (98) continues, one end of the Trigger Lever (15) is forced down and the other end up, thus lifting the Trigger Sear (12) against the action of its Spring (13), disengaging the bottom of the Trigger Sear (12) from the Striker (7). This allows the Striker Spring (8) to force the Striker (7) forward on to the Firing-Pin Point (22), thereby firing the round.

Recoil Action.

Suppose the Gun to have just fired, the explosion causes the Recoiling Parts to move backwards through a distance of about 25.4 mm. compressing the Barrel-Return Spring (44), rotating the Crank (35) winding the Chain on to the Fuzee (41), and compressing the Fuzee Spring (64), causing the Tail of Crank (35) to impinge on the Crank-Resistance Block (70) and imparting a quick upward movement to the Connecting Rod (36) and Crank (35), at the same time drawing back the Lock and opening the Breech.

The travel of the Recoiling Parts to the rear moves the Actuating Pawl (130) in the Feed Block (122) to the right, so as to engage behind a Cartridge in the Belt. When the Lock moves backward the Extractor (18) removes the empty Case from the Barrel and withdraws a Cartridge from the Belt in the Feed Block (122). The Extractor (18) is kept in position by means of its Horns, which move along the upper surface of the Cams (56) inside the Breech Casing until the Cartridge is clear of the Belt. When the Extractor (18) reaches the rear end of these Cams (56) it is deflected downwards by the action of the Cover Guides

(94), thus bringing the Cartridge, drawn from the Feed Block (122), in line with the Barrel (1), with the Empty Case beneath it.

To prevent the Crank (42) being thrown too far over to the Rear on Recoil, a check is provided, this consists of a Pin (76) passing through the Side Plates and secured by Washer and Split Pin, a Tubular Check (74) passing over the pin and between the Side Plates, and a series of Leather Washers (75) inserted in the space between the Pin and the Tubular Check. When the Crank reaches its rearmost position and strikes the Check the blow is taken up on the Pin, Check, and Leather Washers and the resilience of the Leather Washers helps to absorb the shock.

Cocking Action.

The turning of the Crank Handle (42) to the rear not only draws the Lock away from the Barrel (1), but also gives an upward movement to the Connecting Rod (36) and rear end of Side Lever (30). The latter, bearing on the Tailend of the Tumbler (10), rotates it on its axis, and the head of the Tumbler (10), engaging with a projection on the Striker (7), forces the latter to the rear against the action of the Spring (8). When the bent of the Striker (7) has moved behind the bent of the Trigger Sear (12), the latter is forced to engage with the bent of the Striker by the action of the Trigger-Sear Spring (13), and thus holds back the Striker (7). The continued movement of the Tumbler (10) carries back the Striker (7) until the Safety Sear (5) below is forced by its Spring (6) into the bent of the Striker (7), thereby holding back the Striker (7). The Striker is thus prevented from flying forward by two actions, namely, by the action of the Trigger Sear (12), as explained under "Firing the First Shot," and by the action of the Safety Sear (5). The Lock is then cocked.

Action of the Barrel-Return Spring and Fuzee Spring.

When the Gun is fired, the force of the explosion sends the whole of the Recoiling Parts to the Rear, moves the Feed-Block Slide from Left to Right and places the Actuating Pawls behind a fresh Cartridge in the Feed Block.

The Barrel (1) together with the Recoiling Parts move to the Rear one inch (25.4 mm.) and the Crank (35), being in contact with the Spring Bracket (45), compresses the Barrel-Return Spring in its Rearward movement, while a projection on the Crank, coming into sharp contact with the bevelled edge of the Resistance Block (70), causes a quick upward and rearward movement of the Crank Handle (42), thus winding the Fuzee Links on to the Fuzee and further compressing the Fuzee Spring.

The Barrel Return Spring has, therefore, been compressed by an amount equal to the Recoil of the Barrel, while the Fuzee Spring has been compressed by an amount equal to the Recoil of the Barrel plus an amount due to the turn of Crank Handle. These Springs have now a considerable amount of energy stored up in them and, when the Energy of Recoil has expended itself, the Energy stored up in the Springs is released and used to send the Barrel (1) and the Recoiling Parts forward into the home position, as well as to force the Feed-Block Slide (126) from right to left to feed the Gun.

During the first part of the Forward movement, the Barrel-Return Spring (44) is fully released and the Barrel (1) has moved forward into the Firing Position, the Barrel-Return Spring being assisted in its work by the Fuzee Spring giving up one inch of its compression. There is still, however, considerable compression in the Fuzee Spring.

At this stage, although the Barrel has run forward into the home position and the Crank has moved forward one inch, the Crank Handle has not yet commenced to turn. The Crank Handle and Lock, therefore, are still at the Rear. It is thus ensured that the Barrel has run forward into the Firing Position and a fresh Cartridge has been placed in position in the Feed Block before the Lock has run home.

During this second part of the forward movement, the Pull of the Fuzee Spring (64) on the Fuzee (41), due to the remaining compression in the Fuzee Spring (64) now unwinds the Chain (67) from the Fuzee (41), gives a forward rotation to the Crank (35) and sends home the Lock to the Firing Position.

Forward Movement of the Lock.

As the Lock moves forward into the firing position, a live Cartridge is placed in the Barrel Chamber. The Extractor (18) is then moved upwards by the Lifting Levers (29), which are actuated by the Side Lever (30), and the empty case is ejected. During the rise of the Extractor (18) the projecting Gib in the Extractor (18) slides over the live cartridge in the Barrel (1) and brings the Firing-Pin-Point (22) opposite the cap of the cartridge in the Barrel (1), at the same time engaging with another cartridge in the Feed Block (122) at the top of the Extractor (18). There are now two live cartridges in the face of the Extractor (18).

The Final Forward Movement of the Lock.

At the final movement of the Lock, the Extractor (18) reaches its highest position before the Side Levers (30) have quite finished their travel, so that, during the last part of the movement, the points of the Side Levers (30) press against the inclined surface of the bents on the Lifting Levers (29); thus the final forward movement of the Lock, tightens up all the joints in the Breech Mechanism and supports it firmly against the Breech at the instant of explosion. During this movement, the Side-Lever Head, pressing down on the Tail of the Safety Sear (5), disengages the Bent on the Safety Sear (5) from the Bent on the Striker (7) and so frees the Striker from the Safety Sear.

The release of the Safety Sear from the Striker is so timed that it cannot take place until after the lock is in the Firing Position and has been tightened up against the Breech by the last forward movement of the Crank.

Firing of Subsequent Shots (Automatic Firing).

The firing of the first shot is performed by the release of the Trigger Sear (12) from the Striker (7)—as explained previously.

In automatic firing if pressure be maintained on the Trigger (82), the Front Trigger Bar (98) is held to the Rear. Then, as regards Cocking, Recoil and Running-Forward, the parts function normally as explained in "Firing the First Shot." Each time the Lock goes forward, however, the Trigger-Sear Lever (15) comes into contact with the inclined step on the forward end of the Front Trigger Bar (98), thus lifting the Trigger Sear (12) against the action of its spring (13), and disengaging it from the bent on the Striker (7). The Striker (7) is now held by the Safety Sear (5) only; but, as the Crank Handle (42) returns to the Dead Stop (51), the Lock moves forward and the Connecting Rod (36) and Side Lever (30) have a downward movement, so that, when the Lock is in its most forward position, the Side-Lever Head is slightly below the horizontal position, depressing the Tail of the Safety Sear (5) thus disengaging the bent of the Safety Sear from the bent of the Striker. Both Trigger Sear (12) and Safety Sear (5) have now been released and the Striker (7) is quite free to fly forward on to the Firing-Pin-Point (22) under the action of its Spring (8). This action is repeated as long as the Trigger (82) is held and there are cartridges in the Feed Block.

The release of the Safety Sear (5) from the Striker (7) is so timed that it cannot take place until after the Lock is in the Firing Position and has been tightened up against the Breech by the last forward movement of the Crank (35) which movement causes the points of the Side Lever (30) to engage with the inclines on the Bents of the Lifting Levers (29) as described previously.

Action on Release of Trigger (Cease Fire).

If, while firing, the Trigger (82) is released, the Trigger Bars (98 and 99) return to normal, the Trigger-Sear Lever (15) is out of action and the Trigger Sear is retaining the Striker. So, if there are still rounds in the Belt when the Lock runs home, the Trigger-Sear Lever is not interfered with, no further action takes place and the Gun stands ready for firing with two live Cartridges in the Extractor (18).

Firing of Single Shots.

Single Shots can be *fired* by a smart pressing of the Trigger (82) and instantly releasing each time.

The Gun can, however, be loaded to fire single shots as follows :—

To Load for Single Shots.

1. Pull Crank Handle (42) to Rear.
2. Pull Belt through Feed Block (122) as far as it will go.
3. Release Crank Handle (42) and the Extractor (18) will now be gripping one Round still in the Feed Block.
4. Again withdraw the Lock, *but do not touch the Belt.*
5. Let the Lock go forward. The Round is now in the Gun Chamber and the Gun is loaded for Single Shot Firing.

To Fire Single Shots.

1. Raise Safety Catch (86) and press the Thumb Piece on the Trigger (82), when the Gun will Fire the first Round.
2. If the Rear Cover (91) be now opened and the Lock examined after firing the first round, it will be found that the Extractor (18) is gripping a Round in the Feed Block (122), (the same as "half load," *i.e.* one Round on the Extractor at the Top of the Lock), the Gun having functioned normally. To continue Firing, it is only necessary to pull the Crank Handle (42) to the rear without touching the Belt, fire and repeat this operation.

GENERAL INSTRUCTIONS

Experience has shown that during ordinary firing the piece most susceptible to wear is the Firing-Pin Point.

If, during prolonged firing, a part, such as the Lock, becomes worn or damaged, it should be removed and replaced by the Spare Lock, an operation which takes only a few seconds. If, however, the original Lock is subsequently made fit for use by replacing the worn-out part by a new part taken from the spare parts, this Lock should be again taken into use and the Spare Lock returned to the spare-part Box.

To Remove the Lock.

Open the Rear Cover, turn the Crank Handle as far to the back as possible, and see that the Extractor (18) drops, then take hold of the upper Extractor Stop and raise the Lock, allowing the Crank Handle to return slowly back; then, if there are any live Cartridges in the Extractor, remove them while the Extractor is down; now grip the Lock in front, give it one-sixth of a turn to either side, and lift it out.

When the Lock is out of the Gun and it is necessary to release the Main Spring (8) great care should be taken before doing so to see that the Extractor is at its highest point. The Firing-Pin Hole will then be in line with the Firing-Pin Point.

To Replace the Lock.

See that the Connecting Rod is held upright, then giving the Lock one-sixth of a turn to either side, slip the rear end of the Side Lever over the end of the Connecting Rod as far as it will go. Turn the Lock to the front and lower it into the Breech Casing. While turning the crank handle over to the rear, see that the Lock Flanges are engaging in their guides in the Recoil Plates and let go the Crank Handle.

To Remove the Feed Block.

Open the Front Cover; the Feed Block can then be lifted out by pulling it vertically upwards.

To Replace the Feed Block.

Open the Front Cover, and force the Feed Block down into position, taking care that the Feed-Block Slide is well over to the left, so that the Stud on the lower arm of the Lever engages in the recess on the right of the Barrel.

To Remove the Fuze Spring (or Lock Return Spring).

After giving the Crank Handle a partial turn, insert the Tool Pin in the hole in the Spring Case. Upon releasing the Crank Handle, the Spring will be sufficiently free to enable the Fuze to be removed from the Crank.

To replace the Fuze Spring, reverse the foregoing operations.

To Keep the Gun in Working Order.

Before taking a Gun into action, the surfaces on which all moving parts work should be thoroughly lubricated with non-freezing oil, especially the following :—

(a) Bearing Parts of Barrel and all Recoiling Parts.

(b) The Lock Guides on the Recoil Plates, and the working parts of the Lock itself. These include the internal components which can be lubricated through the opening on the upper surface of the Lock Frame and in addition the external parts, such as the Levers and the Extractor.

(c) Faces of Feed Block and the edges of the Cartridge Guides inside the Feed Block.

(d) Bearings of the Crank, as far as they can be reached without stripping the Gun.

To Test Friction of Recoiling Parts.

Remove the lock-return Spring and take out the Lock; withdraw the Pin securing the Handle Block, turn the Handle Block down and remove the Barrel-return Spring and Bracket. Then slide the Recoiling Parts backwards and forwards to see that they move easily and that the Barrel goes right home.

To Test the Pull of Fuzee Spring (as Measured on the Crank Handle).

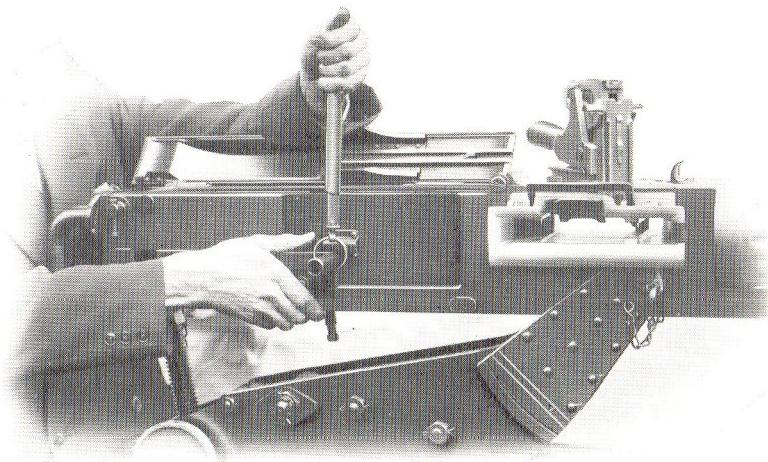


Plate 2

First open the Rear Cover and remove the Lock; place the loop of the Spring Balance over the knob of the Crank Handle and pull vertically upwards. The reading when the Crank Handle *commences* to move should be between 10 and 12 kgs.

N.B.—The Dead Stop must be disengaged from the Crank Handle, otherwise a false reading will be registered.

To Renew the Packing at Breech End of Barrel.

Should the Gun leak at the Breech, remove Lock, Feed Block and Fuzee-spring Box, pull out the "T" Pin from the Handle Block, take hold of the Handles and turn the Handle Block downwards.

Pull out the Barrel-Return Spring and draw out the Recoiling Parts horizontally to the rear; now lubricate a fresh piece of the fine-string asbestos with oil and wind it in the Cannelure of the Barrel, pressing it together with a thin piece of wood or the point of a turn-screw or knife, until the Cannelure is full, then replace the Recoiling Parts, Barrel-Return Spring, Handle Block, Fuzee, Feed Block and Lock.

To Renew the Packing at Muzzle End of Barrel.

Should the Gun leak at the muzzle, unscrew the packing gland and repack, or, if necessary, replace the asbestos packing (first lubricating it with oil) by winding the asbestos round the Barrel. As it is being wound, push it in with a thin piece of wood or the point of a turnscrew or knife. The Gland should then be screwed tightly home, but care should be taken that the asbestos packing does not press too tightly against the Barrel and cause it to jam; this should be tested as already described by seeing if the Recoiling Parts move freely backward and forward when the Gun is horizontal and the Fuzee Spring removed. If the packing is found to press so hard on the barrel as to prevent this being done, the Gland should be removed and the asbestos shortened slightly. This asbestos packing is supplied in suitable lengths.

Points to be Attended to Before Firing.

- (a) Remove all trace of grease when taking the Gun out of the Case.
The Gun must then be liberally lubricated with suitable oil.
- (b) Examine the Barrel and see that the bore is clear. This can easily be done by removing the Lock and looking through the bore after the Handle Block has been turned downwards.
- (c) See that the Spare Lock is close at hand in case of need.
- (d) Examine the Ammunition and see that it is of the proper description, that the Belts are correctly filled, and carefully packed in the ammunition belt Boxes, the bullets pointing towards the muzzle.
- (e) See that the Water Jacket is correctly filled and that the Rear and Front Packings do not leak.

Points to be Attended to During Firing.

- (a) That the hand is kept clear of the Crank Handle to avoid risk of injury.
- (b) That the Belt is on no account to be pulled when the Gun is firing.
- (c) That the Belts are refilled without delay and the Boxes replaced.

Points to be Attended to After Firing.

- (a) That the Gun is unloaded.
 - (b) That the Barrel is cleaned out and oiled immediately to prevent erosion.
 - (c) That the Striker Spring (8) is released.
 - (d) That in collecting the empty cases there are no live cartridges amongst them.
 - (e) That the Lock is taken out, and the Extractor, Firing Pin, and Springs are examined to see that they are not damaged.
- (N.B.)—It will not be necessary to strip the Lock for this.

To Strip the Gun. (See Plate 20, Page 56).

Press front-cover Catch (119), open Front Cover (115) and lift out Feed Block (122).

Open Rear Cover (91) and remove Lock.

Release Fuze Spring (64), as described on Page 24, and remove Fuze (41) from Crank (35).

Turn down the Handle Block (77).

Pull out Barrel-Return Spring (44) and Bracket (45).

Draw out the Barrel (1), Recoil Plates (33 and 34) and Crank (35) from the rear.

Unscrew the Nut (118) of the front-cover Hinge Pin (17), withdraw this Pin and remove the Front Cover (115), withdraw Hinge Pin (92) of the Rear Cover (91) and remove Rear Cover.

Unscrew and remove the Hinge Pin (78) of the Handle Block (77) and remove Handle Block (77).

Withdraw the Split Pin from the dead-stop Washer and remove Dead-Stop (51).

To Assemble the Gun. (See Plate 20, Page 56).

Place Dead-Stop (51) and Collar (52) in position and insert the Split Pin.

Place Handle Block (77) in position and insert the Hinge Pin (78).

Place the Rear Cover (91) in position, insert the Hinge Pins (92).

Place the Front Cover (115) in position, insert the Hinge Pin (17) and screw on the Nut (118).

Insert, from the rear, the Barrel (1), the Recoil Plates (33 and 34) and Crank (35).

Swing the Handle Block (77) into position on its Hinge Pin (78) and insert the Securing Pin (81).

Place the Fuzee (41) on the Crank Spindle and connect to the Spring by means of the Links.

Insert the Lock and close the Rear Cover.

Place the Feed Box in position and close the Front Cover.

To Strip the Feed Block. (*See Plate 15, Page 51*).

Take out the securing Pin (129) of the Feed-Block Levers (127 and 128) by means of the special tool provided and remove Top and Bottom Levers.

Remove Feed-Block Slide (126), pull off the Actuating Pawl (130) and remove actuating-pawl Springs (131).

Unscrew the Axis Pins (135) for retaining Pawls (132) and then take out retaining Pawls and Springs (133 and 134).

To Assemble the Feed Block. (*See Plate 15, Page 51*).

Assemble the Retaining Pawls (132) with Springs and screw in the Pins.

Place the Actuating Pawls (130), Slide (126) and Springs (131) in position.

Place the Top and Bottom Levers (127 and 128) in position and, by means of the special Tool provided, insert the Securing Pin (129).

To Strip the Lock. (*See Plate 21, Page 57*).

Remove the Lock from the Gun and, with the tool provided, take out the side-lever-axis Pin (31), then remove the Side Levers (30), Lifting Levers (28 and 29), and slide off the Extractor (18).

Press the Safety Sear (5) down, press the Trigger-Sear Lever (15) downwards and the Striker (7) flies forward; then press out the Tumbler Axis Pin (11) and remove Tumbler (10). Press out Trigger-Sear-lever Axis Pin (17a) and remove trigger-sear Lever (15). Remove the Plate (14) retaining the Trigger-Sear Spring, Trigger Sear (12) and Spring (13). Remove mainspring securing Plate (9), and main Spring (8), press the Safety Sear (5) down and shake out the Firing-Pin Point (22), then press out Safety-Sear Axis Pin (4) and remove Safety Sear (5). Push out the Gib Cover (21) on the Extractor (18) and remove the Gib Springs (20) and the Gib (19).

To Assemble the Lock.

Insert the Gib (19) and its Springs (20) in the Extractor (18) and slide on the Gib Cover (21). Insert the Safety Sear (5) with Axis Pin (4) and the Striker (7). Replace the Trigger Sear (12) and secure by Retaining Plate (14) and Trigger Sear Lever (15) with its Axis Pin (17a). Slide the Extractor (18) on to the Lock Frame (3) and replace the Tumbler (10) and Lifting Levers (29) with Axis Pin (11). Ease the Striker (7) right forward, insert the Striker Spring, and secure by the Securing Plate (9), put on the Side Levers (30) and secure them with the Axis Pin (31).

THE CARE AND MAINTENANCE OF VICKERS MACHINE GUNS.

It is very important that the bore and chamber should be oiled immediately after firing to prevent erosion.

Cleaning and Lubrication.

When cleaning the Gun, turpentine or oil is to be used; on no account should emery cloth or any cutting substance be used. It is a good plan before assembling the Gun to try the parts in their place separately to see that they work freely.

The Gun should be lubricated with a thin mineral oil which will not cease to flow when exposed to low temperatures. It must be free from acid, dirt, suspended matter and water.

Examination of Components after Practice.

The Locks should be taken out and the Extractors, Firing Pins, and Springs examined to ascertain that they are not damaged. It will not be necessary to strip the Lock to do this.

Monthly Examination.

All Machine Guns must be thoroughly examined once a month, and left in a properly lubricated and serviceable condition.

The following parts should therefore be removed, carefully cleaned, and re-oiled (or greased) :—

Lock, Feed Block, Fuzee Spring and Fuzee Handle Block, Resistance Piece, Dead-Stop, Packings, Barrel and Recoil Plates.

The Spare Lock.

A spare lock is provided with each gun so that, in the event of a broken spring or pin point, the lock in the gun may be immediately replaced by the spare lock from the spare parts. This exchange of locks can be so readily effected that the gun is only momentarily out of action.

FAILURES THAT MAY OCCUR AND HOW TO REMEDY THEM.

The Vickers Automatic Gun possesses the advantage that all its mechanism is in two principal components, namely the Feed Block and the Lock.

In the event of a stoppage, it is only necessary to know which of these two principal components is responsible and then to carry out one of the "remedies" suggested below.

In the event of a stoppage due to a fault in the Feed Block, the latter can be cleared very easily. Should the stoppage be due to a fault in the Lock, this can so easily be removed and replaced by the spare Lock, carried with the spare parts, that this is the simplest way of correcting the fault.

Stoppages during fire may be classified as either :—

(1) *Prolonged*—due to the failure of some component, which, as it cannot be immediately corrected, may put the gun out of action for a more or less prolonged period.

Such Stoppages, which are extremely unlikely to occur, might be caused either by :—

- (a) a loose, or broken Muzzle Attachment, or
- (b) a broken Fuzee or broken Fuzee Spring.

In the event of either of the above, the loose or broken part must, of course, be tightened up or replaced, when the gun will again fire correctly.

(2) *Temporary* due either to

- (a) failure in the Lock or defective Ammunition, or
- (b) lack of experience and knowledge of the gun on the part of the gunner.

To enable him to clear stoppages rapidly, it is obvious that the gunner must be thoroughly cognisant with the mechanism of the gun and with the possible causes of the various stoppages. In order to minimise the chances of such stoppages, all ammunition must be carefully inspected and on no account must faulty rounds be loaded into the ammunition belts.

TEMPORARY STOPPAGES.

The following Table of Temporary Stoppages gives a clear indication of the Cause of and the "Remedy" for each Stoppage:—

Column 1 (*in conjunction with Plates 3 to 6*)

shows the four positions of the Crank Handle in which the Gun may stop firing. The first three positions may vary slightly.

The position of the Handle affords a ready indication of the correct "Remedy" to be applied.

Column 2

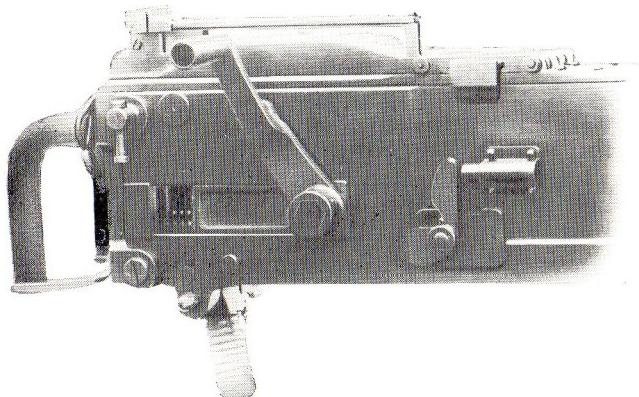
gives the Cause of the Stoppage.

Column 3

gives the "Remedy" necessary to prevent a recurrence of the Stoppage.

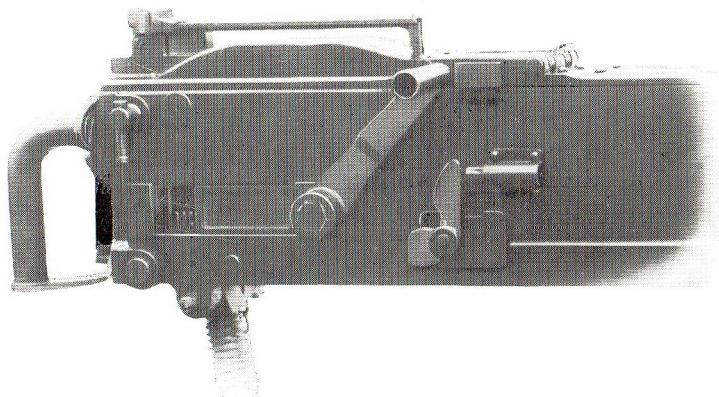
TABLE OF TEMPORARY STOPPAGES.

1	2	3
Position of Crank Handle.	Cause	"Remedy."
Stoppage No. 1 <i>See Plate 3 opposite.</i>	(1) Faulty Ammunition. (2) Cartridges too tight, in the Links. (3) Excessive friction due to congealed oil.	(1) Inspection of Ammunition. (2) Compliance with the "Points before Firing" (<i>see page 26</i>). (3) Repeat Firing until the Gun is warmed up.
Stoppage No. 2 <i>See Plate 4 opposite.</i>	(1) Separated Case, due to insufficient support of the Lock on the base of the Cartridge, giving excessive head space. (2) Separated Part of the Case in the Chamber.	(1) [a] Draw back the Crank Handle, until the Horns of the Extractor are retained by the Extractor Safety Catch. Push out the Cartridge from the Extractor by means of the Butt End of the Clearing Plug. Release the Crank Handle. [b] Reload and Fire. (2) [c] Use the Clearing Plug to remove the separated Case. Reload and Fire.



**Stoppage
No. 1**

Plate 3



**Stoppage
No. 2**

Plate 4

TABLE OF TEMPORARY STOPPAGES—continued.

1	2	3
Position of Crank Handle.	Cause.	Remedy.
Stoppage No. 3 <i>See Plate 5 opposite.</i>	<p>(1) Excessive Friction due to congealed Oil. (2) Friction on the face of the Lock obstructing the upward movement of the Extractor. (3) Faulty Feed. (4) Fuze Spring too weak.</p> <p>(1) Excessive Friction due to congealed Oil. (2) Friction on the face of the Lock obstructing the upward movement of the Extractor. (3) Faulty Feed.</p> <p>(4) Fuze Spring too weak.</p>	<p>Strike down sharply on the Crank Handle with a glancing blow, to prevent injuring the hand, and Fire. <i>If this fails, proceed as follows :—</i></p> <p>(1) Repeat Firing until the Gun is warmed up. (2) Draw back the Crank Handle until the Horns of the Extractor are retained by the Extractor Safety Catch. Examine these parts and see that they are well oiled. (3) [a] Draw back the Crank Handle until the Horns of the Extractor are retained by the Extractor Safety Catch. Examine the Feed Block and push the Belt into the correct position in the Feed Block. [b] Disengage the Retaining Catch. [c] Release the Crank Handle. [d] Fire. (4) Increase the initial compression on the Spring.</p>
Stoppage No. 4 <i>See Plate 6 opposite.</i>	<p>(1) Misfire (Defective Ammunition). (2) Broken or Damaged Firing Pin. (3) Broken or Damaged Main Spring.</p>	<p>(1) [a] Draw back the Crank Handle. Pull the Ammunition Belt from right to left. Release the Crank Handle. This action ejects the faulty Cartridge and puts a fresh one in the Barrel. [b] Fire. (2) Unload. & (3) Remove the Lock and replace by a spare one. Reload. Fire.</p>

**Stoppage
No. 3**

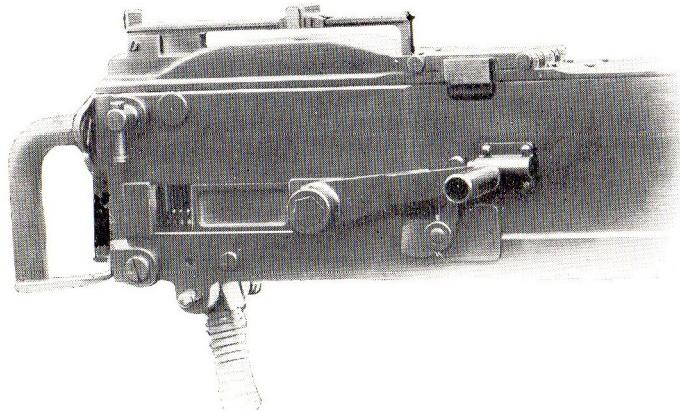


Plate 5

**Stoppage
No. 4**

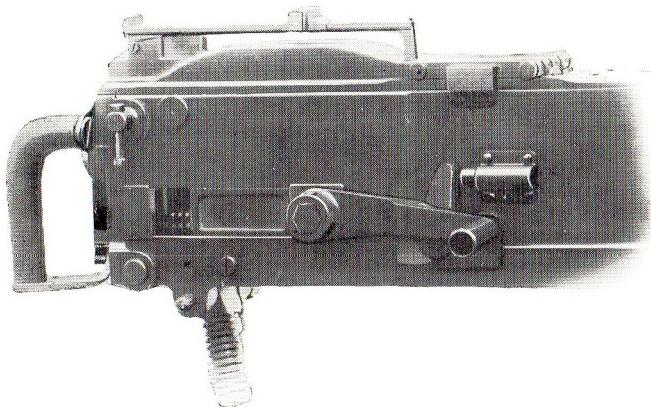


Plate 6

12.7 mm. (0.5-INCH) AUTOMATIC GUN

CLASS D*

TYPES OF AMMUNITION.

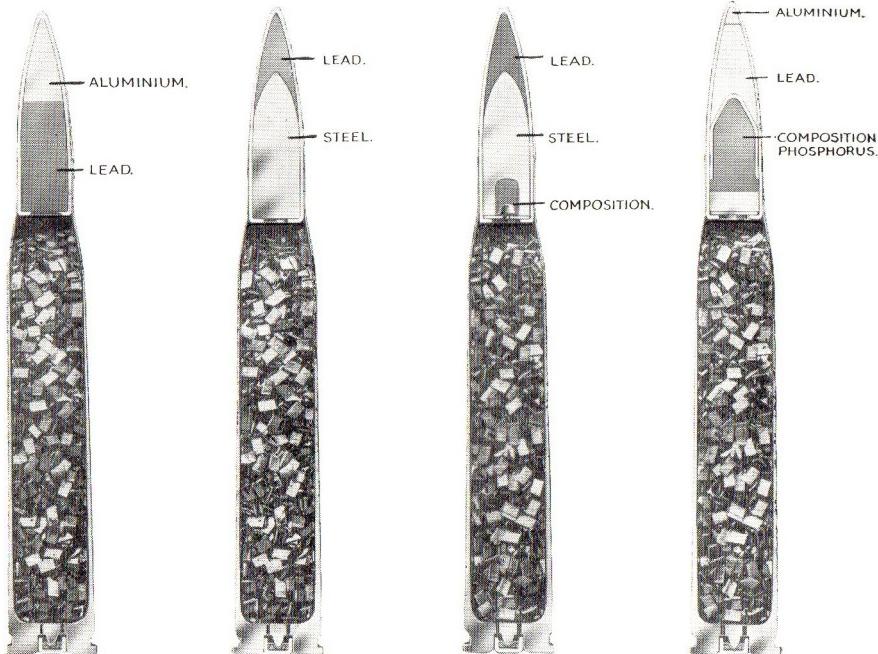


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Plate 7

The Ammunition for use with the Gun can be supplied in four types as follows :—

- FIG. 1. Service Ammunition.
- FIG. 2. Armour Piercing Ammunition.
- FIG. 3. Flame Tracer Ammunition.
- FIG. 4. Smoke Tracer Ammunition.

12.7 mm. (0.5-INCH) AUTOMATIC GUN

CLASS D*

No. on Arrgt.	NOMENCLATURE.
1	Barrel.
2	Asbestos Packing (rear).
3	Lock Frame.
4	Axis Pin, for Safety Sear.
5	Safety Sear.
6	Spring, for Safety Sear.
7	Striker.
8	Spring (Main) for Striker.
9	Plate, securing Main Spring.
10	Tumbler.
11	Axis Pin, for Lifting Lever and Tumbler.
12	Trigger Sear.
13	Spring, for Trigger Sear.
14	Plate, retaining Trigger-Sear Spring.
15	Lever, for Trigger Sear.
16	Roller, for Trigger-Sear Lever.
17	Axis Pin, for Trigger-Sear-Lever Roller.
17a	Axis Pin, for Trigger-Sear Lever.
18	Extractor.
19	Upper Gib.
20	Springs, for Upper Gib.
21	Cover, for Upper Gib.
22	Firing-Pin Point.
23	Spring, for Firing-Pin Point.
24	Lower Gib.
25	Spring for Lower Gib.
26	Disc, Retaining Lower-Gib Plate
27	Plate, for Lower Gib.
28	Lifting Lever R.H.
29	Lifting Lever L.H.
30	Side Lever.

No. on Arrgt.	NOMENCLATURE.
31	Axis Pin, for Side Lever.
32	Pin, securing Axis Pin for Side Lever.
33	Recoil Plate R.H.
34	Recoil Plate L.H.
35	Crank.
36	Connecting Rod.
37	Crank Pin.
38	Pin, for Crank Pin.
39	Adjusting Nut.
40	Adjusting Washers.
41	Fuzee.
42	Crank Handle.
43	Fixing Pin, for Crank Handle.
44	Spring, for Barrel Return.
45	Bracket, for Barrel-Return-Spring Guide.
46	Guide for Barrel-Return Spring.
46a	Spindle, retaining Barrel-Return Spring.
47	Nut, for Spindle.
48	Side Plate R.H.
49	Cam R.H.
50	Bracket, for Dead Stop.
51	Dead-Stop.
52	Collar, Securing Dead-Stop.
53	Plunger, for Dead-Stop.
54	Spring, for Dead-Stop Plunger.
55	Side Plate L.H.
56	Cam L.H.
57	Extractor-Safety Catch.
58	Spring, for Extractor-Safety Catch.
59	Washer, securing Safety Catch.
60	Hinge on Rear Cover (Rear).
61	Hinge on Rear Cover (Front).
62	Bracket, for Fuzee-Spring Case.
63	Fuzee-Spring Case.

64	...	Spring, Fuzee, for Lock Return.
65	...	Fuzee-Spring Rod.
66	...	Adjusting Nut, for Fuzee Spring.
67	...	Fuzee Chain.
68	...	Fuzee-Chain Hook.
69	...	Bracket, for Resistance Block.
70	...	Resistance Block.
71	...	Bolts, securing Resistance Block.
72	...	Nuts, securing Resistance Block.
74	...	Crank Check.
75	...	Cushion, for Crank-Check.
76	...	Pin, for fixing Crank-Check (with Split Pin).
77	...	Handle Block.
78	...	Hinge Pin for Handle Block.
79	...	Nut, for Handle-Block Axis Pin (with Split Pin).
80	...	End Cap (Front).
81	...	Pin, Securing Handle Block.
82	...	Trigger.
83	...	Pin, for Trigger Axis.
84	...	Trigger Lever (Part 1).
85	...	Trigger Lever (Part 2) (with Roller).
86	...	Safety Catch.
87	...	Axis Pin, for Safety Catch.
88	...	Case, for Safety-Catch Spring.
89	...	Spring, for Safety Catch.
90	...	Plunger, for Safety Catch Spring.
91	...	Rear Cover.
91a	...	Tangent-Sight Support.
92	...	Hinge Pin, for Rear Cover.
93	...	Washers, for Rear-Cover Hinge Pins (with Split Pin).
94	...	Guides, on Rear Cover.
95	...	Bracket, for Rear-Cover Catch.
96	...	Catch, for Rear Cover.
97	...	Spring, for Rear Cover Catch and Trigger-Bar.

No. on Arrgt.	NOMENCLATURE.
98	Trigger Bar (Front Part).
99	Trigger Bar (Rear Part).
100	Trigger-Bar Lever.
101	Plunger, for Trigger-Bar Lever Return-Spring.
102	Pin, securing Rear-Cover-Catch Bracket (Front).
103	Washer, securing Rear-Cover-Catch Bracket (Front).
104	Pin, securing Rear-Cover-Catch Bracket (Rear).
105	Washer, securing Rear-Cover-Catch Bracket (Rear).
106	Sight Bed.
107	Tangent-Sight Stem.
108	Sight Carriage.
109	Screw, securing Sight Carriage.
110	Pawls, for Sight Carriage.
111	Springs, for Sight-Carriage Pawls.
112	Plunger for Sight-Stem.
113	Spring, for Sight-Stem Plunger.
114	Pin, securing Sight Stem.
115	Front Cover.
116	Bracket, for Front-Cover Catch.
117	Hinge Pin, for Front Cover.
118	Nut, for Front-Cover Hinge Pin (with Split Pin).
119	Catch, for Front Cover.
120	Pin, for securing Front-Cover Catch.
121	Spring, for Front-Cover Catch.
122	Feed Block.
123	Guide and Stop, for Cartridge.
124	Guide and Stop, for Bullet.
125	Spring, for Bullet Guide.
126	Slide, for Feed Box.
127	Lever, for Upper Slide.
128	Lever, for Lower Slide.
129	Pin, securing Slide Levers.
130	Actuating Pawls.
130a	Axis Pin, for Actuating Pawl.
131	Spring for Actuating Pawl.

No. on Arrgt.	NOMENCLATURE.
132	Retaining Pawls.
133	Springs, for Retaining Pawls (Front).
134	Spring, for Retaining Pawls (Rear).
135	Axis Pins, for Retaining Pawls.
136	Trunnion Block.
137	Trunnions.
138	Water Jacket.
139	Steam Tube (Inner).
140	Steam Tube (Outer), or, Slide Valve.
141	Rear Piece, for Steam Tube.
142	Front Piece, for Steam Tube.
143	Screw, securing Steam Tube.
144	Stuffing Box.
145	Asbestos Packing (Front).
146	Flash Eliminator.
147	Bracket, for Fore Sight.
148	Fore Sight.
149	Water Plug (Filling).
150	Water Plug (Emptying).
151	Cork Plug with Chain.
152	Protecting Cap with Chain.
153	Rear Aperture for A.A. Sight.
155	Forward-Area Sight.
156	Bracket, for Forward-Area Sight (riveted to Water Jacket).
158	Spring, for Forward-Area Sight.
159	Securing Screw.

NOTE.—When ordering New Parts, the Part Number, Nomenclature and Number of this Handbook (M. 8) should be carefully quoted.

SPARE PARTS

No. on Arrange- ment	Quantity per set	NOMENCLATURE
1	1	Barrel.
3 to 32	1	Lock (Complete).
22	2	Firing-Pin Points.
23	2	Springs for Firing-Pin Points.
19	2	Gibs (Upper).
25	2	Springs, for Lower Gib.
20	2	Springs, for Upper Gib.
8	2	Springs (Main), for Striker.
6	4	Springs for Safety Sear.
31	1	Axis Pin, for Side Lever.
17	1	Axis Pin, for Trigger-Sear-Lever Roller.
11	1	Axis Pin, for Lifting Lever and Tumbler.
40	3	Adjusting Washers .003 inch.
40	3	, .005 ,
133 & 134	2	Springs, for Retaining Pawls (Feed Block), 1 R.H. and 1 L.H.
5	1	Safety Sear.
128	1	Lever (Bottom).
127	1	Lever (Top).
12	1	Trigger Sear.
10	1	Tumbler.
129	1	Pin, retaining Top Lever.
125	1	Spring, for Bullet Guide.
131	1	Spring, for Actuating Pawl.
97	2	Spring, for Rear-Catch Cover and Trigger Bar.
121	2	Spring, for Front Cover Catch.
89	1	Spring, for Safety Catch.
58	1	Spring, for Extractor Safety Catch.
44	1	Spring, for Barrel Return.
64	1	Spring (Fuzee), for Lock Return.
41	1	Fuzee (Complete with Chain).
81	1	Pin, securing Handle Block.
	2	Sets of Split Pins.

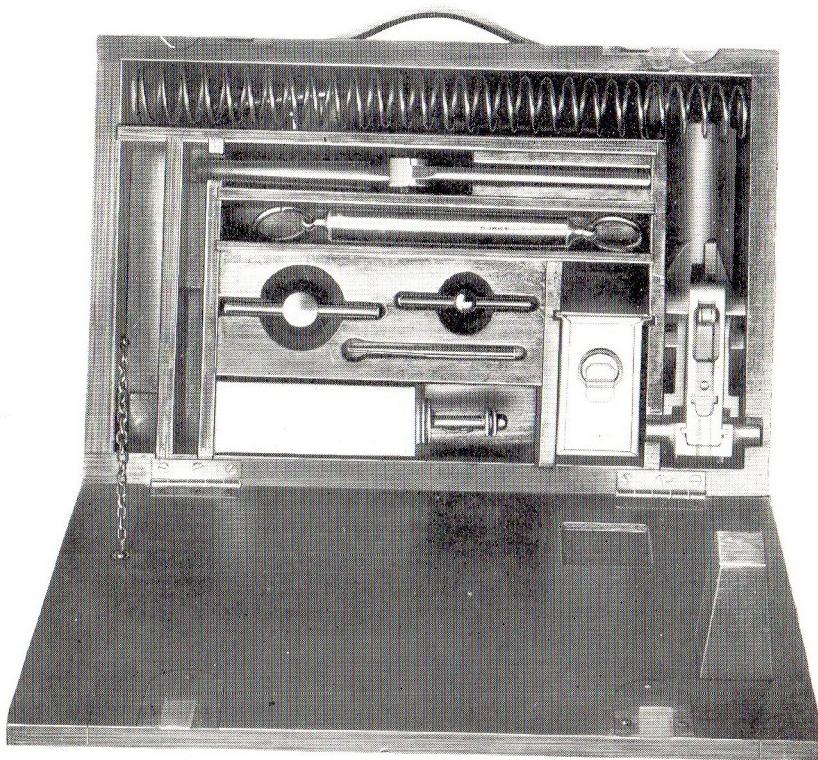


Plate 8. **Box for Tools, Spare Parts and Accessories.**

TOOLS

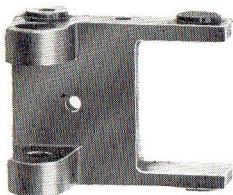
Quantity per set	NOMENCLATURE
1	Spring Balance.
1	Cleaning Rod.
1	Clearing Plug.
1	Punch, for Actuating Pawl.
1	Wrench, for Adjusting Nut.
1	Tool, for assembly of Side Lever Axis Pin.
1	Screwdriver.

ACCESSORIES

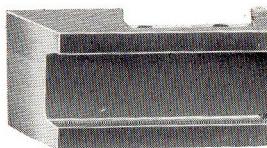
Quantities per set	NOMENCLATURE
1	Tin Box (large).
1	Oil Can.
1	Box for Tools, Spare Parts and Accessories.
1 per Six Guns	Cartridge-Adjusting Machine.
4	Ammunition Boxes (100 Rounds).
400	Metallic Links.



Plate 9. Cartridge Adjusting Machine.



69
BRACKET.



70
RESISTANCE BLOCK.



71
SCREW BOLTS
(TWO IN NUMBER).



72
SPLIT
PIN.
NUTS
(TWO IN NUMBER).



51
DEAD STOP.



52
COLLAR.



53
PLUNGER.



54
SPRING.



58
SPRING.



57
SAFETY CATCH.



59
WASHER.



74
CRANK CHECK.



75
CUSHIONS.



76
FIXING PIN.



146.
PACKING GLAND.



149
WATER PLUG.

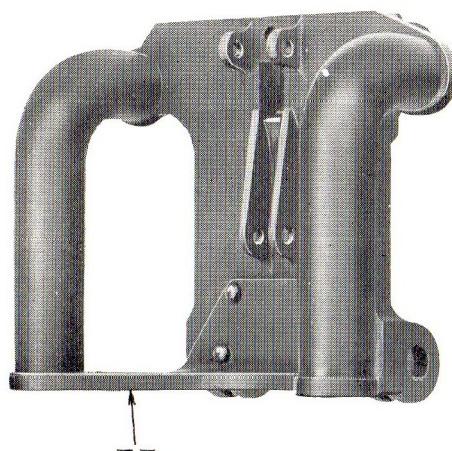


152
PROTECTING CAP.



150
WATER PLUG. 151
CORK PLUG.

Plate 10. Details of Gun Casing.



77
HANDLE BLOCK.



82
TRIGGER.



83
AXIS PIN.



89
SPRING.



88
SPRING CASE.



90
PLUNGER.



86
SAFETY CATCH.



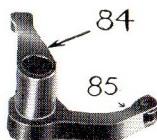
87
AXIS PIN.



78
HINGE PIN.



79
NUT & SPLIT PIN.



84 TRIGGER LEVER (PART 1).
85 " " (PART 2).



81
SECURING PIN.

Plate 11. Details of Handle Block.

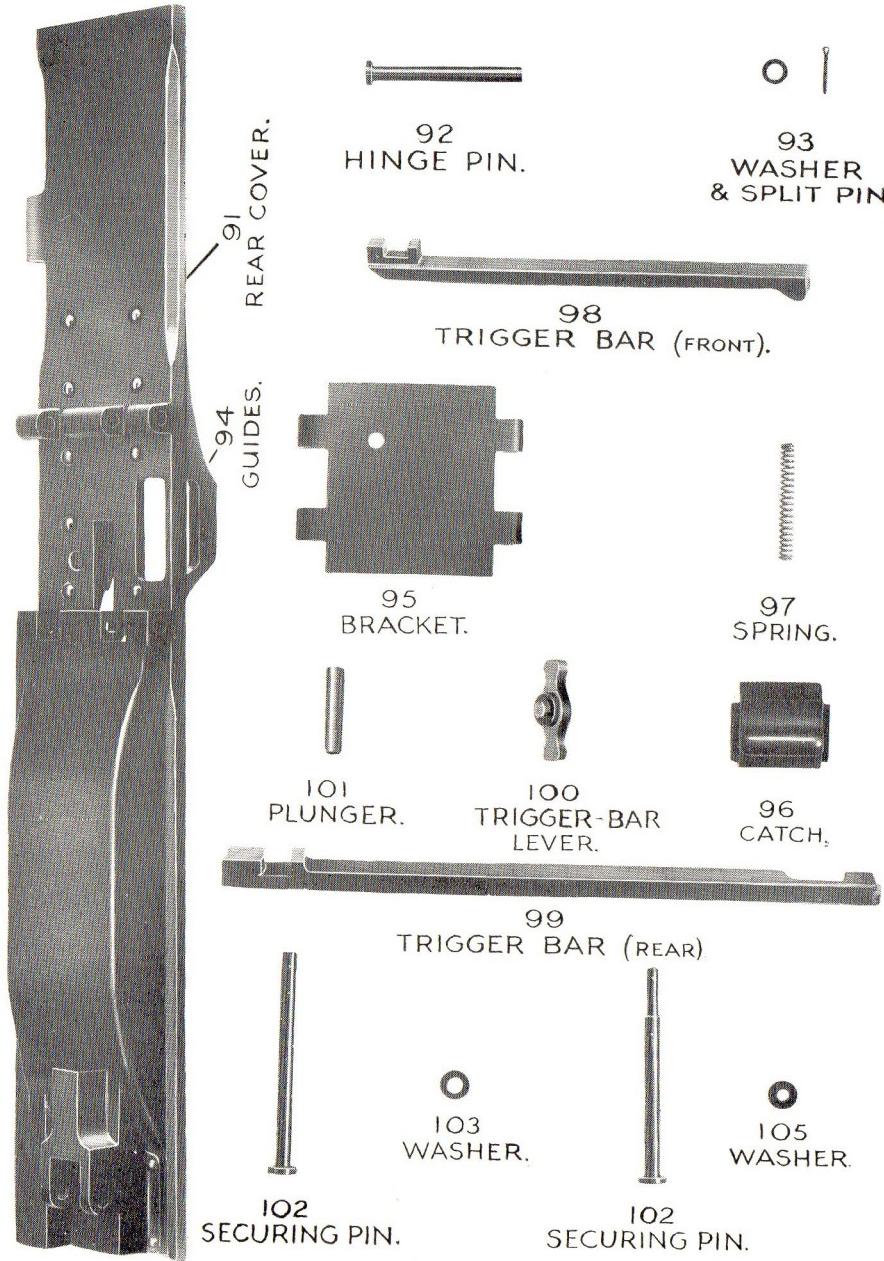
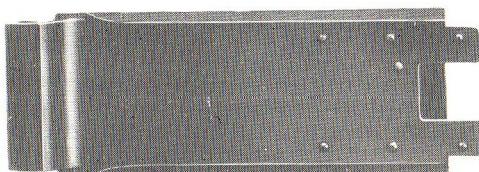


Plate 12. Details of Rear Cover.



115
FRONT COVER.



121
SPRING FOR CATCH.



119
CATCH.



120
SECURING PIN.

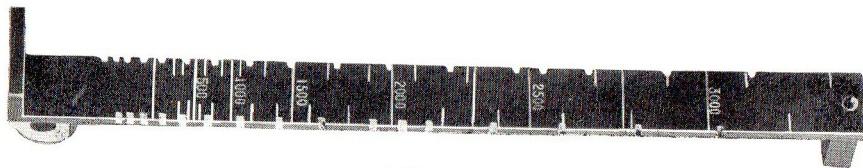


117
HINGE PIN.



118
NUT WITH SPLIT PIN.

Plate 13. Details of Front Cover.



107
TANGENT-SIGHT STEM.



APERTURE
FOR
A.A.SIGHT.

108
SIGHT CARRIAGE.

III
SPRINGS.



110
PAWLS.



109
SECURING SCREW.



113
SPRING.



112
PLUNGER.

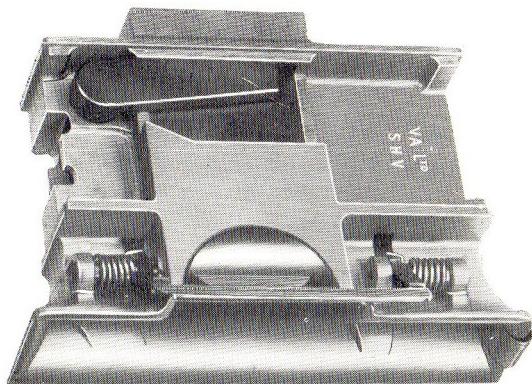


114
SECURING PIN.

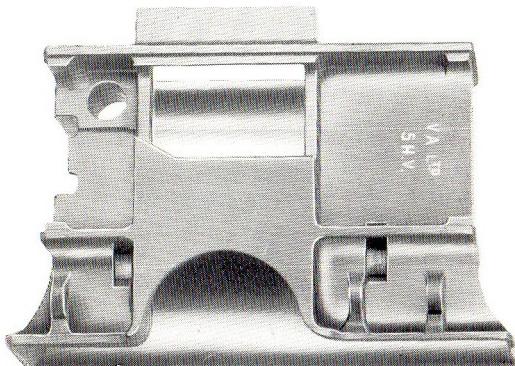


148
FRONT SIGHT.

Plate 14. Details of Tangent Sight and Front Sight.



ASSEMBLY OF FEED BLOCK.



122
FEED BLOCK.



127
LEVER (UPPER).



132
RETAINING PAWL.



128
LEVER (LOWER).



130
ACTUATING PAWL.



130^A
AXIS PIN.



133
SPRING (FRONT).



134
SPRING (REAR).
135
AXIS PIN.



129 SECURING PIN.

Plate 15. Assembly and Details of Feed Block.

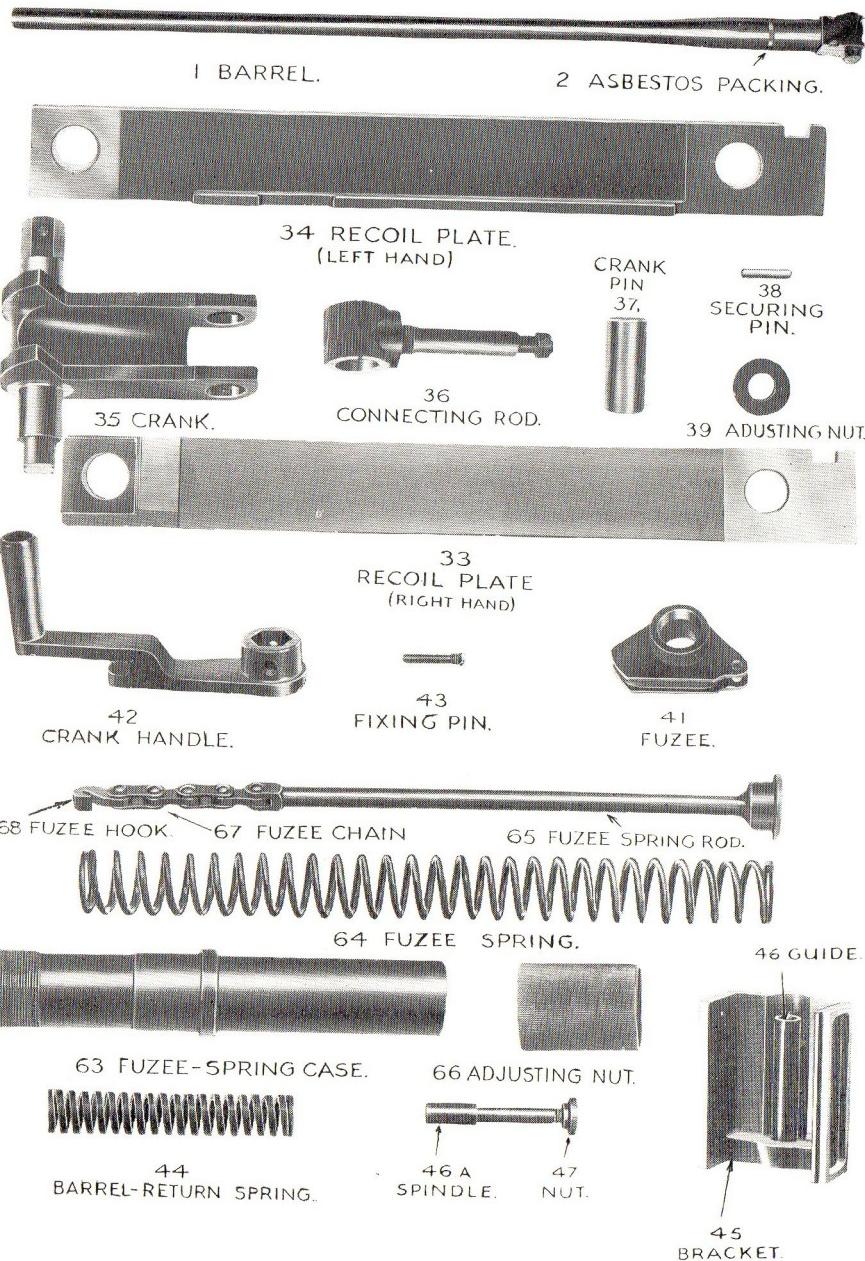
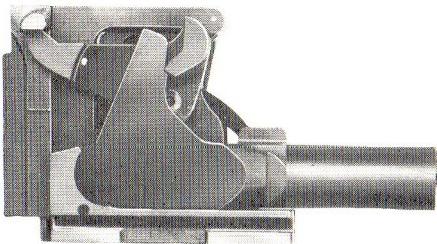
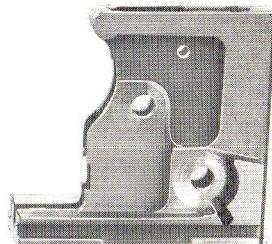


Plate 16. Details of Recoil Gear.



3 TO 32 ASSEMBLY OF LOCK.



3 LOCK FRAME.

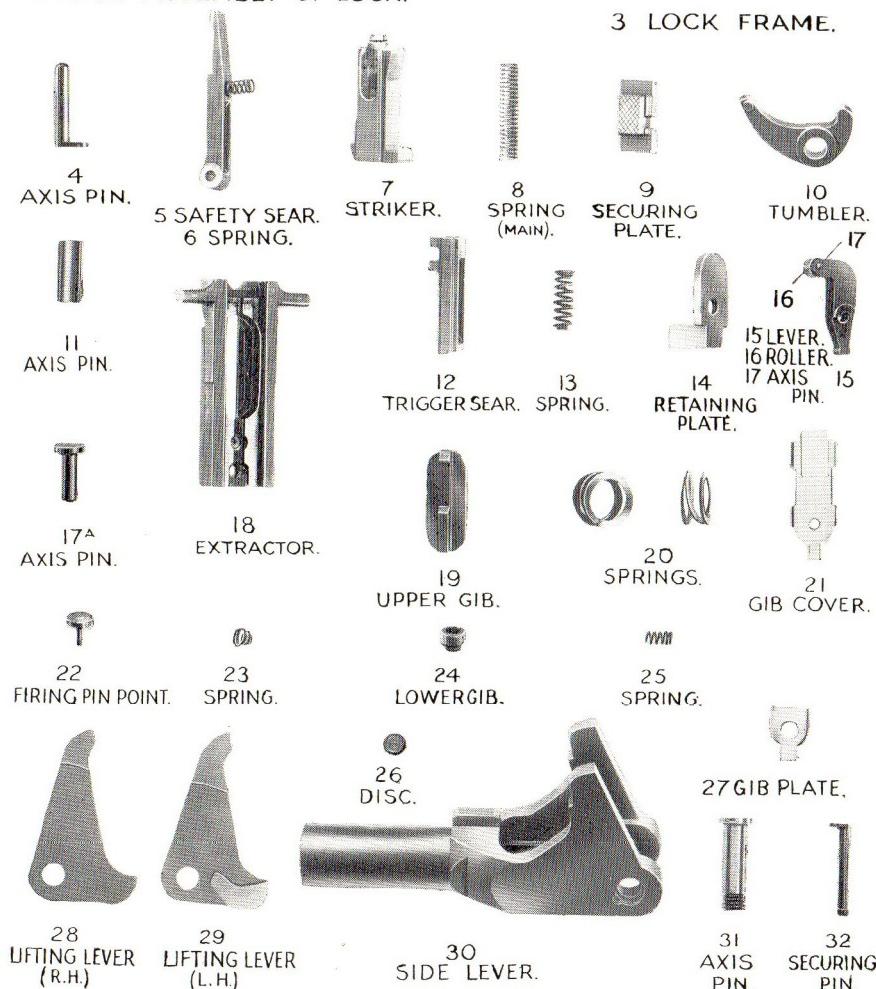


Plate 17. Assembly and Details of the Lock.

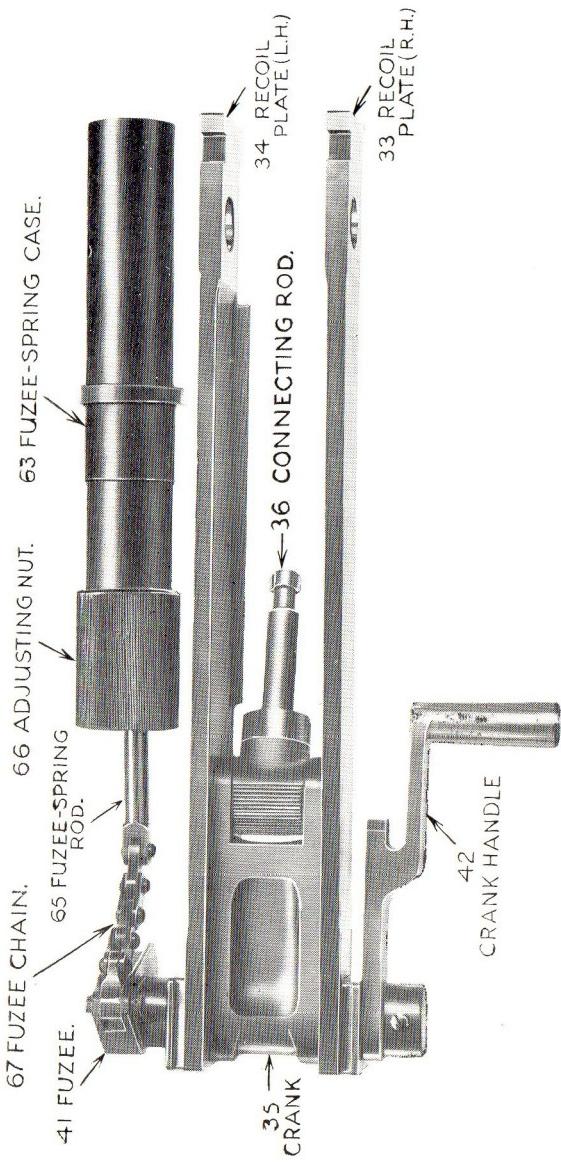


Plate 18. Assembly of Recoil Details with Spring Case and Adjusting Nut.



Plate 19. Details of Tools and Accessories.

RAWLINGS & WALSH, LTD.
PRINTERS, CHERTSEY.

Plate 20
Page 56

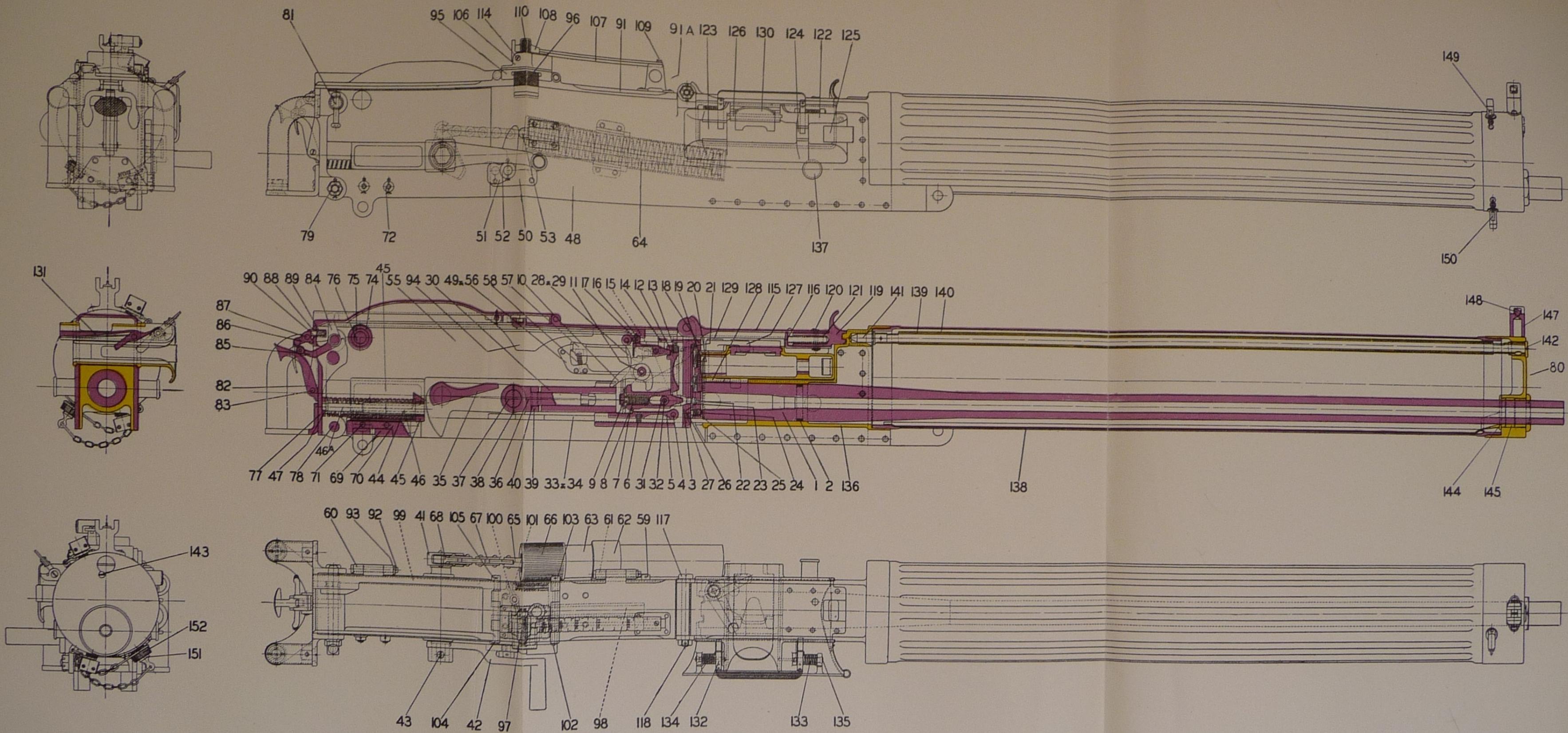
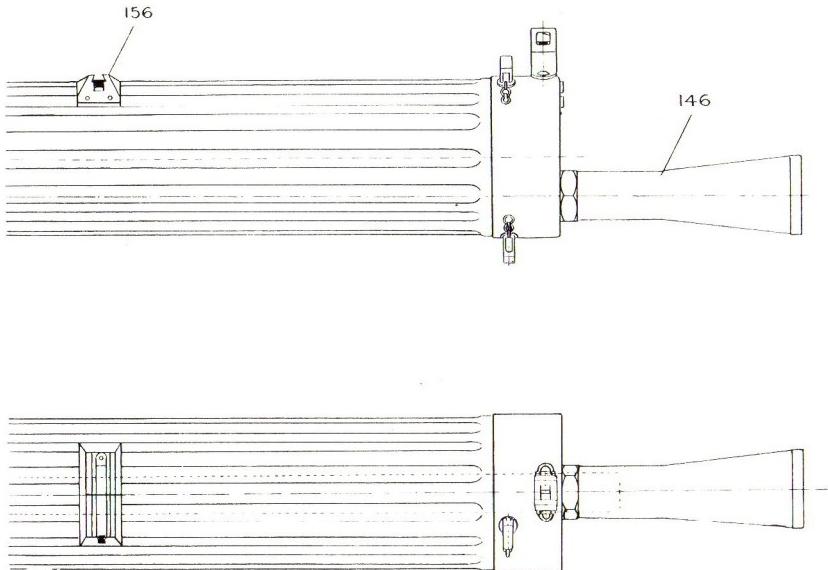


Plate 20. General Arrangement of the Gun.



156. Shows new Forward-Area Sight Bracket
as fitted in the new model.

146. Shows a Flash Eliminator
as fitted in the new model.

Plate 21
Page 57

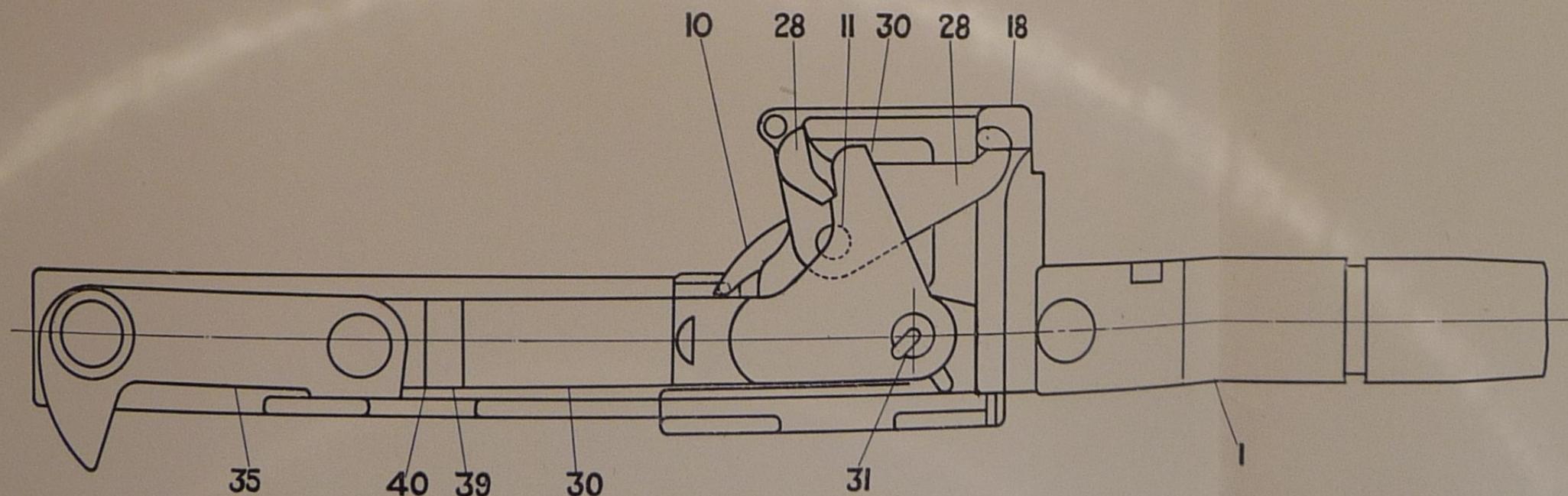
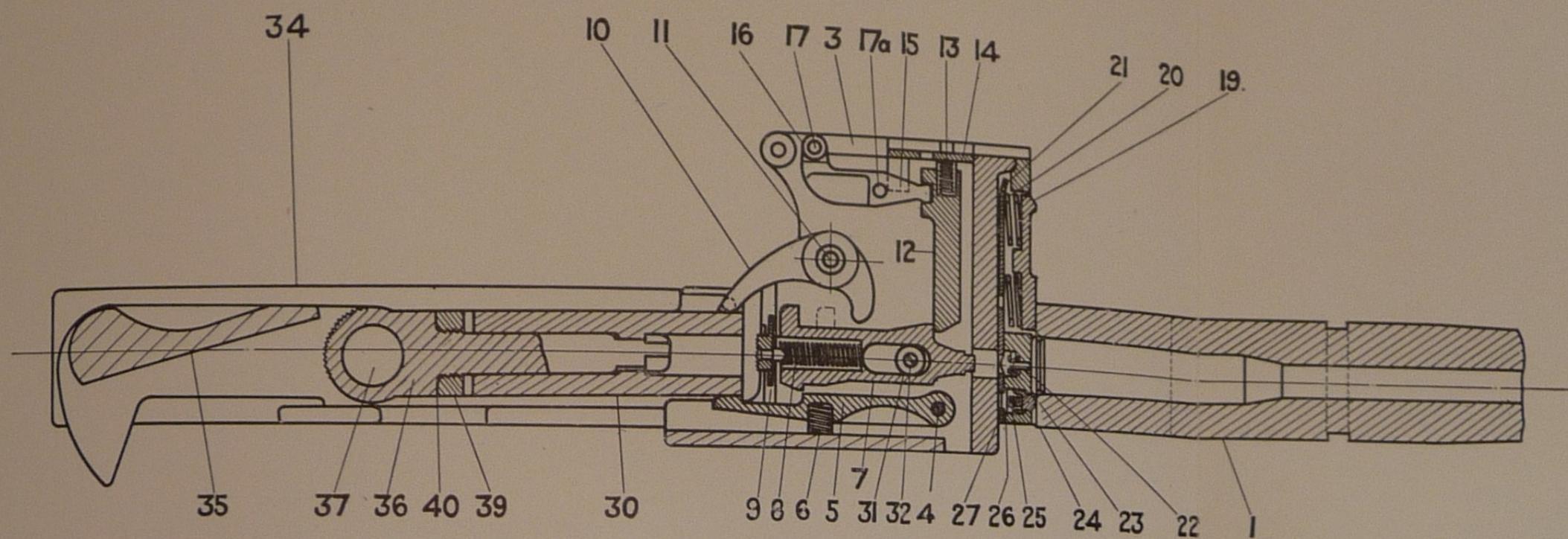
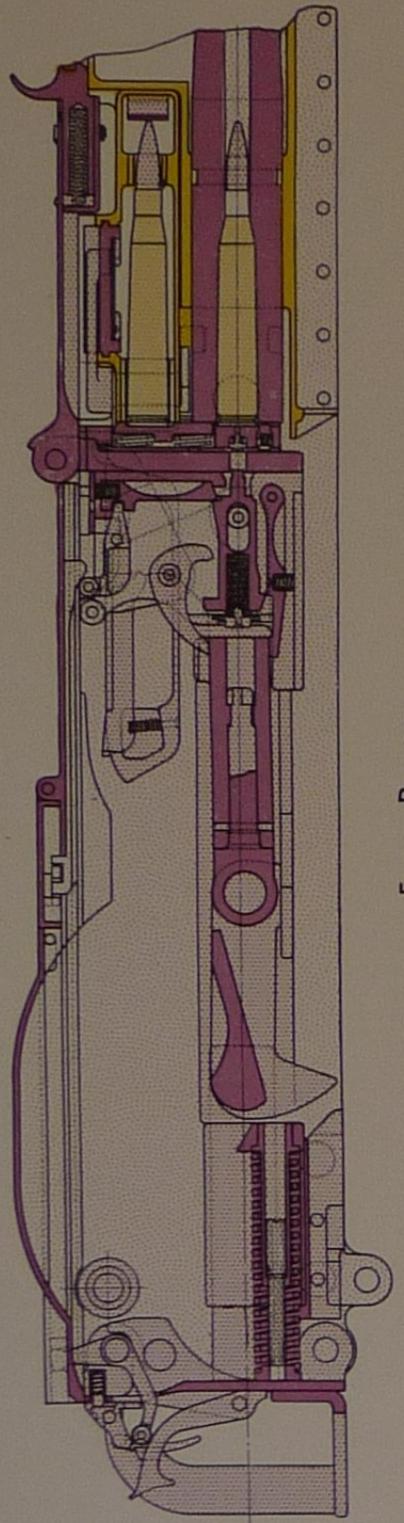


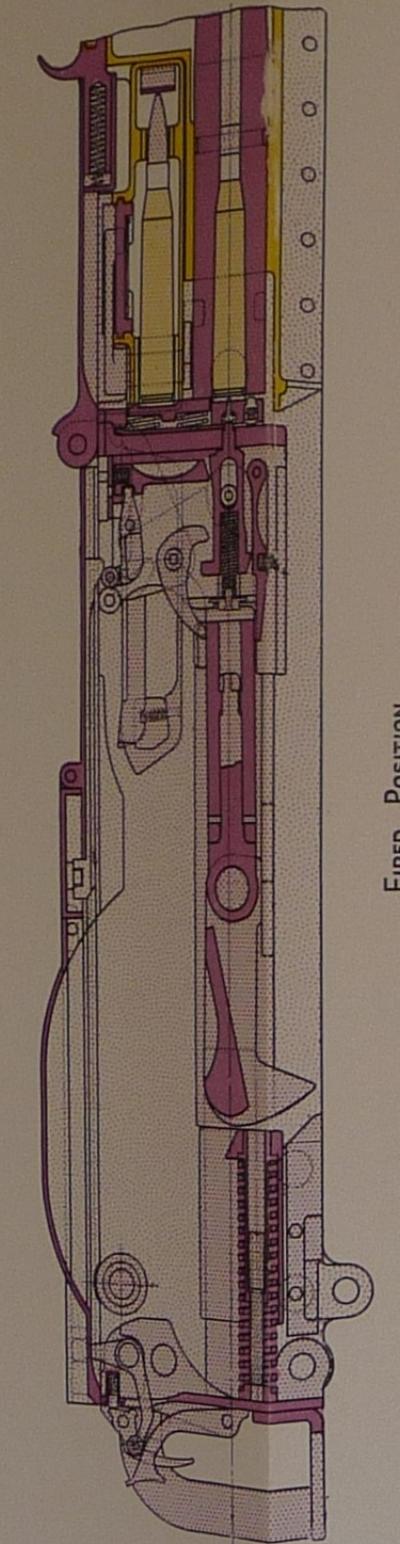
Plate 21. Recoiling Mechanism.

Plate 22
Page 58



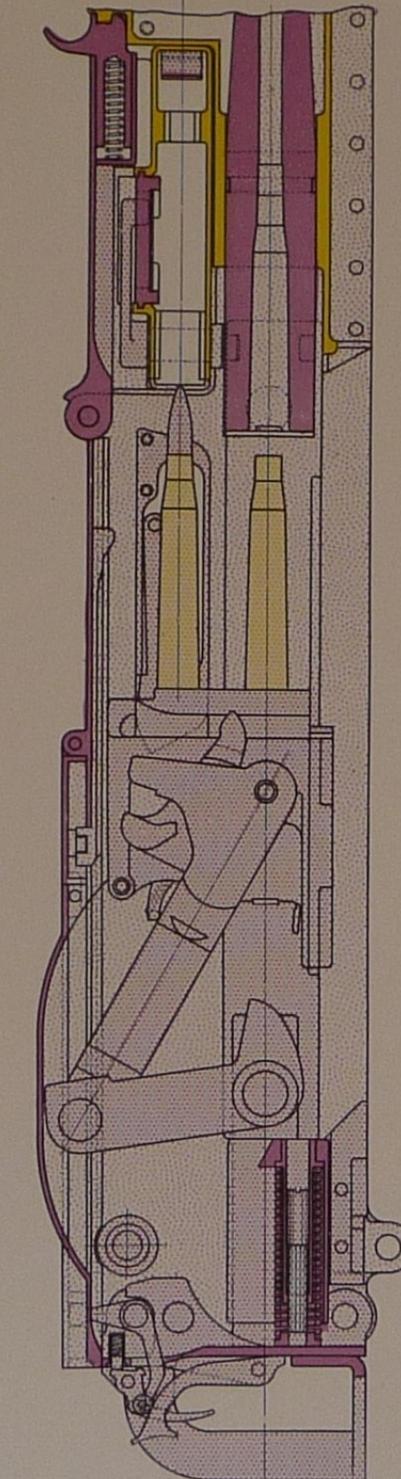
FIRING POSITION.

LOCK, BARREL AND RECOIL PLATES FULLY HOME. FIRING PIN COCKED ON TO HANSEAR AND EXTRACTOR ENGAGING WITH TWO LIVE CARTRIDGES, ONE IN THE BARREL AND ONE IN THE FEED BOX.



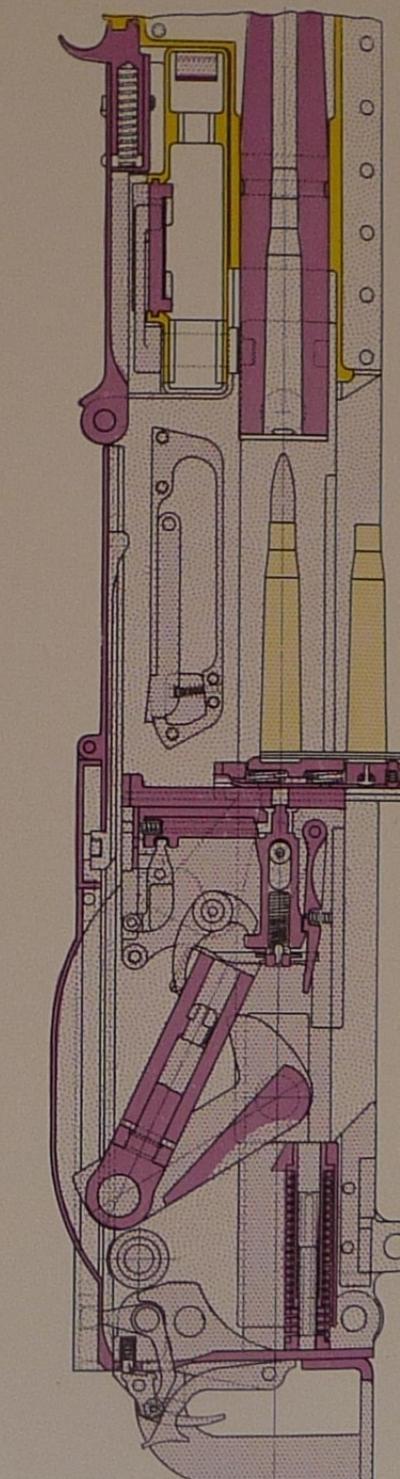
FIRED POSITION.

LOCK, BARREL AND RECOIL PLATES FULLY HOME. FIRING PIN RELEASED AND THE EXTRACTOR ENGAGING WITH A LIVE CARTRIDGE IN THE FEED BOX AND WITH EMPTY CASE IN THE BARREL.



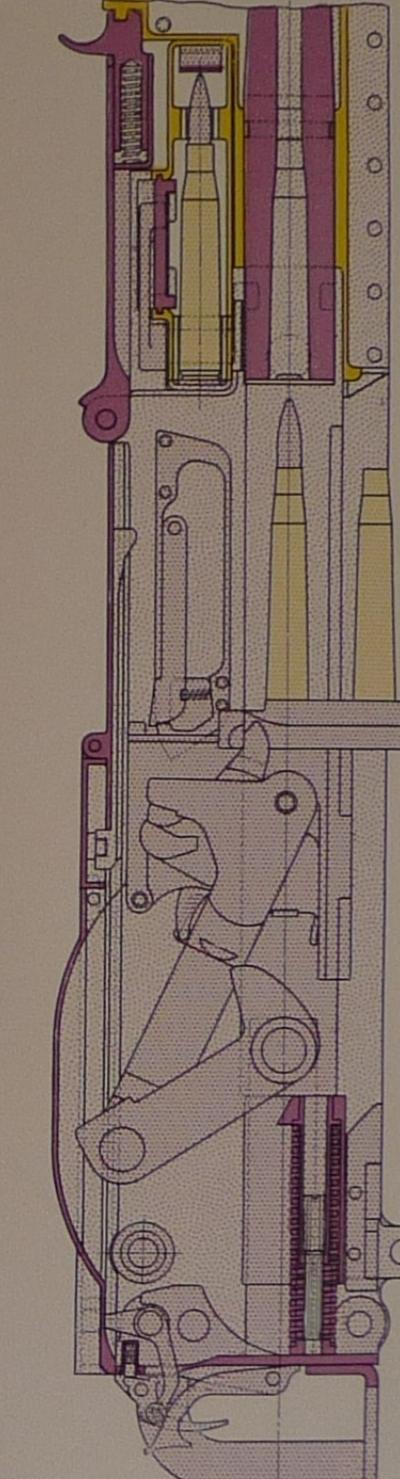
RECOILING POSITION.

BARREL AND LOCK PARTLY RECOILED, COCKING THE FIRING PIN, AND EXTRACTING THE LIVE CARTRIDGE FROM THE FEED BOX, AND THE EMPTY CASE FROM THE BARREL.



RECOILED POSITION.

BARREL AND LOCK FULLY RECOILED, BARREL ON THE POINT OF RETURNING WITH CRANK AGAINST CRANK CHECK, EXTRACTOR WITH LIVE ROUND IN LINE WITH THE BARREL AND EMPTY CASE IN LINE FOR EJECTION.



RETURNING POSITION.

BARREL AND RECOIL PLATES FULLY RETURNED AND NEW CARTRIDGE BROUGHT INTO FEED BOX, LOCK RETURNING WITH LIVE ROUND IN LINE WITH BARREL AND EMPTY CASE IN LINE FOR EJECTION.





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